

# Construction Methods

SEPTEMBER 1946

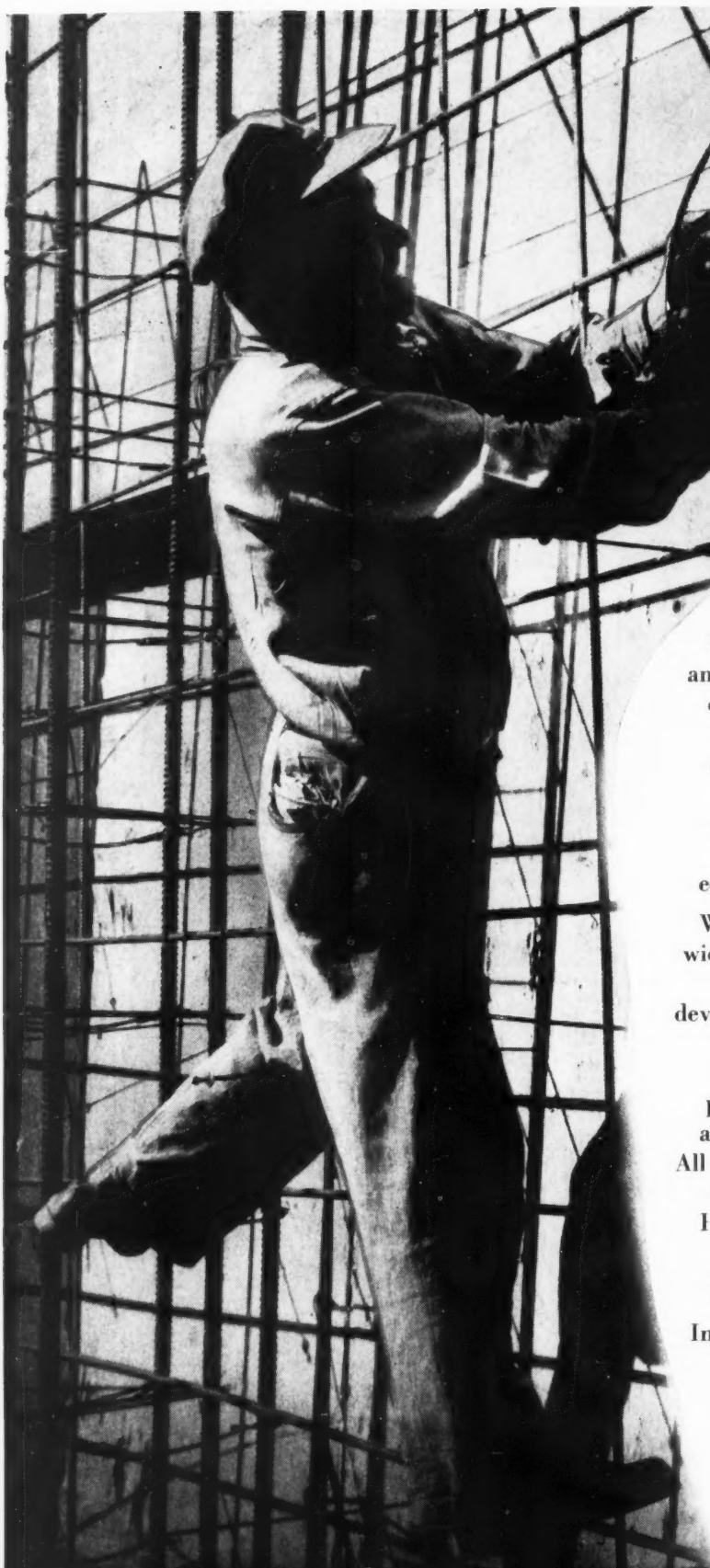


Grid Roller Holds Oversize Stone  
Below Grade Surface

## ACCOUNTING FOR CONTRACTORS

FIRST OF A SERIES ON GOOD BUSINESS PRACTICE

Special Plates for Push-Tractor Scraper Loading  
Winterized Equipment on Navy Oil Exploration  
New Tricks in Casting and Handling Concrete Sheet Piles



*Use  
Hi-Bond\*  
Bars for fast  
and secure  
placement*

Placing of reinforcing steel is done more speedily and securely with HI-BOND bars. The helical ribs dovetail so well at intersections that the simplest wire tie will hold HI-BOND bars firmly fixed even in difficult wall positions. When HI-BOND Concrete Reinforcing Bars are tied in position they easily support a heavy man. The saving in time, labor and wire makes possible more economical construction.

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Inland Steel Co., 38 S. Dearborn St., Chicago 3, Ill.  
Sales Offices: Cincinnati, Detroit, Indianapolis.  
Kansas City, Milwaukee, New York.  
St. Louis, St. Paul. *Principal Products:* Bars.  
Structurals, Plates, Sheets, Strip, Tin Plate.  
Floor Plate, Piling, Reinforcing Bars, Rails.  
Track Accessories.

\* Reg. U. S. Pat. Off.

# INLAND HI-BOND

## CONCRETE REINFORCING BARS

# Construction Methods

A Pictorial Survey of Current Practice, Equipment and Material

A. E. PAXTON, Publisher

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## Cuts and Fills

ANOTHER LABOR problem rears its ugly head to plague the harassed contractor. In Cleveland local carpenter union officials claimed the right to assign their members to specific projects, and pulled all carpenters off industrial work for re-assignment to veteran housing. Neither patriotism nor co-operation with the housing program was the motive—the move was a protest against a Wage Adjustment Board order reducing wage rates from \$1.90 to \$1.87½. Contractors stood by helpless, for they are bound by WAB rulings which, of course, labor can ignore by striking. Top AFL leaders broke the situation by ordering the workers released to all jobs after other building craftsmen had tied up all work in a retaliatory strike against the carpenters.

STEEL SCRAP is again critical, and contractors can help keep up the flow of new steel by aiding the present scrap drive. Of course, a lot of contractor scrap is still being used as equipment until new machines are available, but there is also a lot of junk beyond use even in these hectic days of shortages lying around the shops and yards. Turn it in, fellows, and it might come back to you in reinforcing rods or beams or, who knows, maybe as a tractor or shovel.

CPA ISN'T FOOLING about the necessity of obtaining proper authority to build. It has cracked down on several builders for making false and misleading statements in their construction applications. Applying for permission to build a grocery store for ultimate use as a liquor salesroom won't work, nor will statements that all materials have been acquired at the site, when actually none was on hand, as disillusioned builders are finding out. Better be sure the project meets all requirements before you take on the job today, otherwise you may get royally stuck.

ENCOURAGING REPORTS are coming in on apprenticeship training, without which construction will soon find itself bereft of skilled labor. In July, the Department of Labor reports, 60,810 building trades apprentices were in training, a gain of 32 percent over the previous month. Nearly 39,000 contractors are engaged in apprenticeship programs, a tribute to the consistent work being done by various building congresses and AGC chapters.

THIS MONTH we start a series on practical accounting for contractors, aimed specifically at the smaller companies who are all too prone to stress the field work and overlook the office job. There is little sense in doing a good job unless you know your costs. In fact, if you don't know your costs you won't be a contractor very long.



SEPTEMBER, 1946



## HERE'S HOW IN THIS ISSUE

- ELECTRIC LIFT TRUCKS aid tile manufacture —p. 85
- AIRPORT CONSTRUCTION involves 1,000,000 cu. yd. of grading —p. 86
- SPECIAL TRACTOR-SCRAPER PUSHPLATES handle tough sand loading —p. 88
- WINTERIZED EQUIPMENT helps Navy's Arctic oil explorations —p. 92
- SHEETPILES for floodwalls are cast on concrete platform —p. 96
- GRID ROLLER pushes oversize stone below grade surface —p. 100
- 175-TON FRACTIONATING TOWER is raised by derrick masts —p. 101
- WELDED TANKS are supported by sloping tubular columns —p. 107
- MODERN TUNNELING METHODS are adopted on Moscow's fourth subway —p. 108
- BACKHOE GRUBBING proves cheapest method of stump removal —p. 110
- SHOP-MADE SCALER removes rust and scale from metal bars —p. 111
- BRACKETS clamped to posts speed erection of scaffold —p. 111
- TALL TANK is moved 237 ft. on rollers —p. 112

## ACCOUNTING FOR CONTRACTORS

FIRST OF A SERIES OF ARTICLES ON  
GOOD BUSINESS PRACTICE—p. 104

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Name .....

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# model HD-10

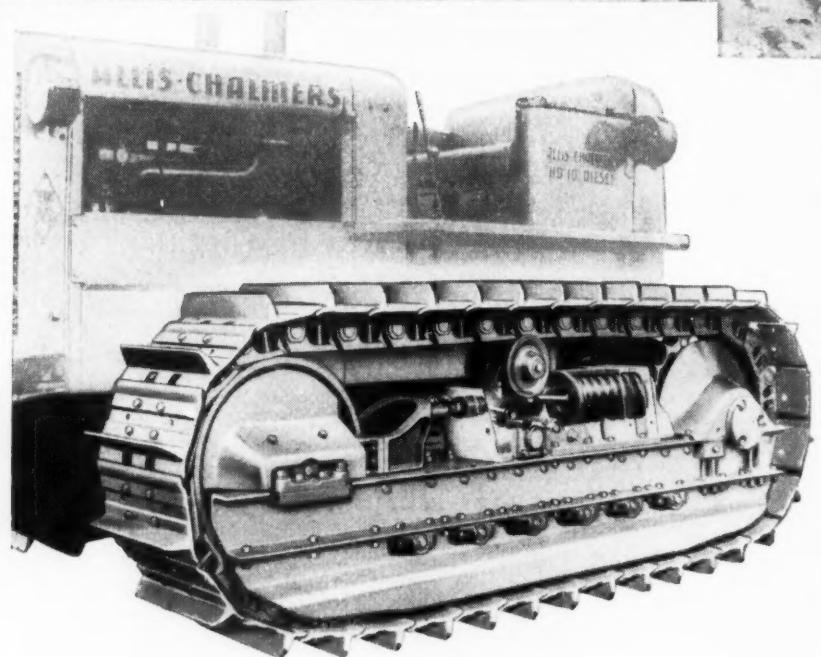


- \* Ground contact is increased over ten per cent, ground pressure reduced, with two more shoes per track. Truck frame is longer and heavier. Additional truck roller on each track reduces wear and tear. Extra heavy front spring makes HD-10 especially desirable for working with front or engine mounted equipment.

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IMPROVED BALANCE . . .  
IMPROVED RIDING . . .  
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# BALANCE

**makes Every Load a Bigger Load  
... Every Job an Easier Job!**

A highly profitable tractor to own  
... a pleasure to operate — that's  
the **CORRECTLY BALANCED HD-10!**

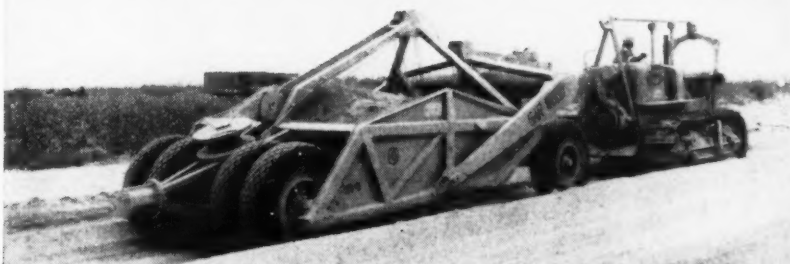
## **EVERY LOAD BIGGER!**

Extended track and addition of approximately a half-ton in properly distributed weight provides ground-gripping traction, more lugging and pushing ability.\* Makes it a better performer with any equipment ... on every type of soil.

## **EVERY JOB EASIER!**

Operators especially like its smoother, easier riding and performance. They get more done with less effort. Wear and tear on tractor and auxiliary equipment is cut to a minimum, too!

This all adds up to greater output, more profit. Your Allis-Chalmers dealer will be glad to give you complete information ... **NOW!**



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TRACTOR DIVISION

MILWAUKEE 1, U. S. A.

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CARTOONS DRAWN FOR CONSTRUCTION METHODS

Construction Methods



Construction Methods

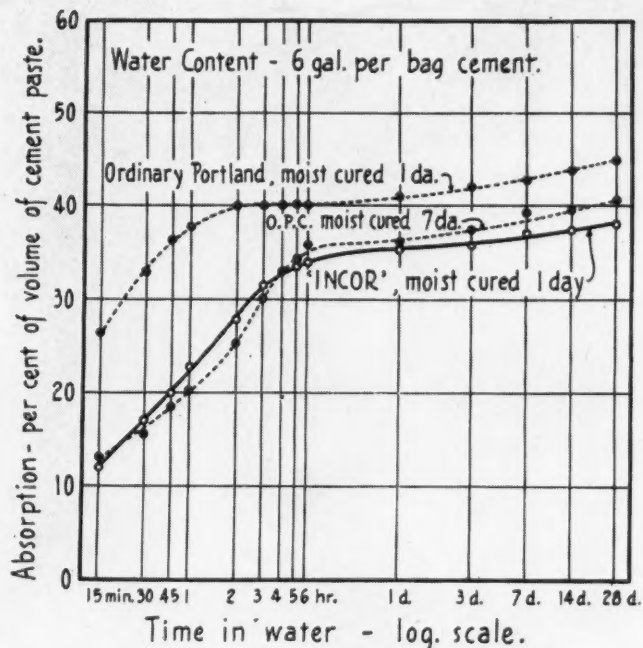


"Can't you live in half a house for three months?"



"Quit your shoving. What do you think it is—Ladies' Day?"

# 'INCOR' HELPS KEEP WATER



## EFFECT OF CURING TIME ON ABSORPTION.

Tests of 3x3x15-in. mortar bars.  
Age of bars, when immersed - 18 mo's.

# In or Out



Right, heavy-duty floor at Dr. Pepper Bottling Works, Springfield, Mo. 'Incor' keeps water OUT—longer wear, better service.

Faster, thorough 'Incor' curing makes it easier to get watertight work. Left, Municipal Swimming Pool, Moss Point, Miss. 'Incor' concrete keeps water IN.



**G**OOD concrete—a good mix, properly placed and **THOROUGHLY CURED**—is watertight, of itself and by itself. But thorough curing means keeping ordinary concrete wet 6 to 8 days—next to impossible on most jobs. That is why it pays to use 'Incor' 24-Hour Cement. 'Incor' cures, that is, combines with water, so much faster that you get **THOROUGH** curing in 24 to 48 hours, saving 5 to 7 days on each pour. Tests summarized in graph, above, show that 'Incor' cured 1 day has less absorption than ordinary cement cured 7 days.

Use 'Incor'\* wherever water has to be kept in or out—see the all-important difference in durability and watertightness. Write for illustrated book, "Watertight Concrete,"—address Lone Star Cement Corporation, 342 Madison Ave., New York 17, N. Y.

\*Reg. U. S. Pat. Off.



LONE STAR CEMENTS COVER EVERY CONSTRUCTION NEED

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# "Tense?" NOT ME!"



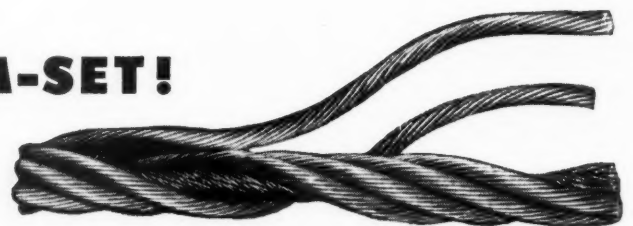
Maybe he doesn't know it, but he's taking the world's best medicine—relaxation. No locked-up stresses in *him*.

## "Tense?" NOT FORM-SET!

A preformed rope is relaxed, too—relaxed internally, just like the man. But, in the case of the rope, that inner, relaxed effect is permanent. Preforming does it.

Bethlehem Form-Set (preformed) rope is remarkably free of internal stresses. In wire rope language, it is much less susceptible to bending fatigue.

A Form-Set rope is good-natured . . . easy to handle, easy to rig. And you'll find that it doesn't kink readily. Try it and see what *built-in relaxation* means to rope!



This is a cut section of Form-Set rope. The wires and strands cannot spring up by themselves; in this case, they have been lifted out by hand.

Even when cut or broken, the wires and strands of a Form-Set rope are relaxed, free of locked-in tension; lie smoothly and easily in place.

All grades, sizes, and types of Bethlehem wire rope can be obtained with the Form-Set construction.

BETHLEHEM STEEL COMPANY  
BETHLEHEM, PA.

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Bethlehem Pacific Coast Steel Corporation*



**When you think WIRE ROPE . . . think BETHLEHEM**



*These Proved **EUCLID** features  
Assure Dependable Performance  
And Lower Cost Operation*



**Versatility** — The Bottom-Dump Euclid hauls all types of earth, ore, and free-flowing material . . . loads fast and easy with shovels, draglines, elevating graders, conveyor belts, or from transfer bins.

**Speed and Capacity** — Moves 20-ton payloads at speeds from 2 to 26 m.p.h.

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**Economical Operation** — Full-floating, planetary-type drive axle is unequalled for trouble-free performance . . . proper payload weight distribution and large tires for traction in tough going . . . heavy duty 150 h.p. engine and five speed transmission for ample power on steep grades and difficult, off-the-highway hauls.

*Write for facts and figures on what Euclids can do for you on present or future work*

**The EUCLID ROAD MACHINERY Co., Cleveland 17, Ohio**



**EUCLIDS**



*Move the Earth*





## ...keeps Heil Hydraulic Bulldozers on the job doing more Low-cost Work for You

Because Heil hydraulic Bulldozers move more dirt at less cost, they are general favorites with Oliver-Cletrac users everywhere. These contractors like the quick, accurate blade control; the full visibility; and the fast digging action made possible by the Heil hydraulic system. They know that the scientific contour of the Heil Bulldozer blade, with its reversible cutting edge, gives a bigger load-carrying capacity than you get with conventional units.

All these things result in more work done, but that isn't all. There is one more feature of tremendous importance — dependable strength. The trouble-free hydraulic system, for example, is practically leak-proof. Large diameter cylinders permit the use of low

hydraulic operating pressures. Piston rods are chrome-plated to prevent rusting and pitting. The tolerance between the piston and its finely honed cylinder is so close that there is seldom, if ever, any need for time-consuming piston replacement.

Heil's all-welded box-section construction provides unusual strength; there is no dead weight to slow down the work. Tailor-made for Oliver-Cletrac tractors, the Heil hydraulic Bulldozer is attached by means of sturdy connections in such a way that there is proper distribution of loads and stresses. That is why Heil hydraulic Bulldozers stay on the job — turning out low-cost work. See your nearest Oliver-Cletrac distributor for further important details.

*You get something for nothing when you use Heil Cable Scrapers — bigger loads. The Heil bowl design permits loading 15% more material in the same length of time and with the same drawbar horsepower as conventional units. Nothing can touch a Heil Cable Scraper for yardage.*



# THE HEIL CO.

GENERAL OFFICES • MILWAUKEE 1, WISCONSIN

R-83

*A development of*  
**B.F. Goodrich**  
**FIRST IN RUBBER**



## Extra bruise resistance is built into these tires that float—yet grip

TIME was when bogs were bogeys for construction men working in soft dirt, sand and loam—conditions often met in building roads, dams, levees, airports. Tires would mire. When wheels would spin, tires might be cut by sharp rocks. Added injuries came when the tires hit rocks and ruts. These hits were shocks to the tire's heart—impacts leading to bruises, ply separation and blow-outs. Tire life, and job profits, were shortened.

But these tire headaches were just the kinds that B. F. Goodrich engineers could cure. They analyzed every angle, designed a new tire with special features . . . the Super Traction (shown above). The bogging down problem was solved with a special self-cleaning tread with enlarged contact area to provide maximum flotation. The tire

stays on top, yet the big, heavy cleats take a deep, broad bite. There's plenty of traction for heavy pulling and big yardage.

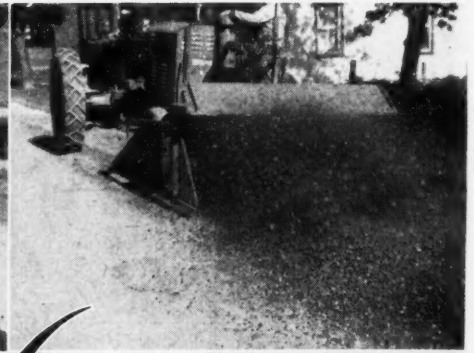
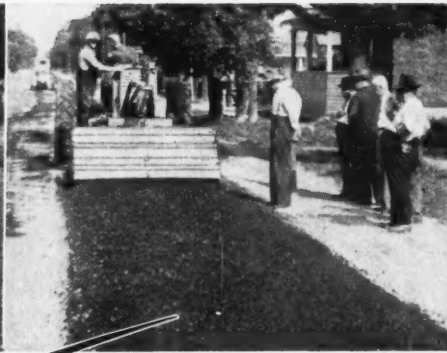
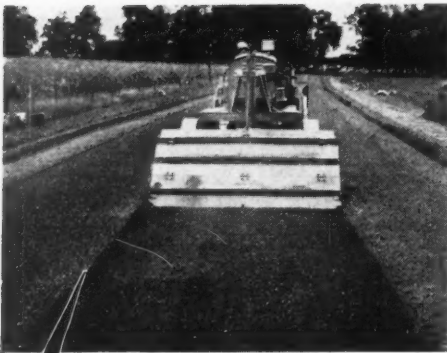
Then, extra bruise-resistance was built into the tough Super Traction with a new construction principle—the *shock shield*. This shield is a set of four breakers—layers of rubber-coated rayon cords—between the tread and the plies. The breakers are in pairs, with the cords in each pair running parallel to each other—but with each pair running in opposite directions to give balanced strength. The breakers are cushioned with thick layers of shock-resistant rubber.

Under impact, the cords in the breakers stretch together—not across each other—and return to their original position. The blow is *distributed*

and *absorbed* by the rubber cushions. Any shocks passed on to the cord body are greatly reduced.

Shock-shield protected Super Traction, and other B. F. Goodrich off-the-road tires are making big savings for users. They report fewer bruises, far less ply separation, better traction, longer wear. Users' own records show cases where tire life has been more than *doubled*. Let these tires make similar savings for *you*. See the B. F. Goodrich dealer, or write to us direct. The B. F. Goodrich Company, Akron, Ohio.

*Truck Tires* BY  
**B.F. Goodrich**



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Take out a requisition for  
SEAMAN MIXER (MODEL MHD-72)  
for our use in

1. Road mixing for all our soil stabilization work.
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3. Aerating to dry wet aggregate.
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The famous book, "Soil Stabilization Methods", compiled by SEAMAN engineers has been completely revised and enlarged. New information developed during the war years has been added. Send for your copy today. Ask for Bulletin C-25.

SOIL  
STABILIZATION  
METHODS

Also requisition  
SEAMAN MIXER MODEL MHD-72  
(4 feet wide) for in-place  
mixing on our highway  
shoulder work

# SEAMAN MIXER

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*Another **NORTHWEST**  
**REPEAT ORDER**  
goes to Virginia!*

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of  
Roanoke, Va.  
buys his  
Ninth  
Northwest**

● It's the Rock Digging that has proved Northwest superiority! Any equipment can demonstrate a lot of flash in easy going. Perhaps when new, it can even demonstrate a lot of flash in rock.

But ask the man who knows Northwest—and other similar equipment—ask him how much he has spent to keep it in service after six months or so operation. You'll find it is Northwest that does the biggest job at the lowest cost. That's why every third Northwest is a repeat order in the hands of contractors like Ralph Mills of Roanoke, Va.

If you have a real Rock Shovel, you'll never have to worry about output in any kind of digging.

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*-and  
when you have  
a real Rock Shovel  
you won't have  
to worry about  
output in dirt*

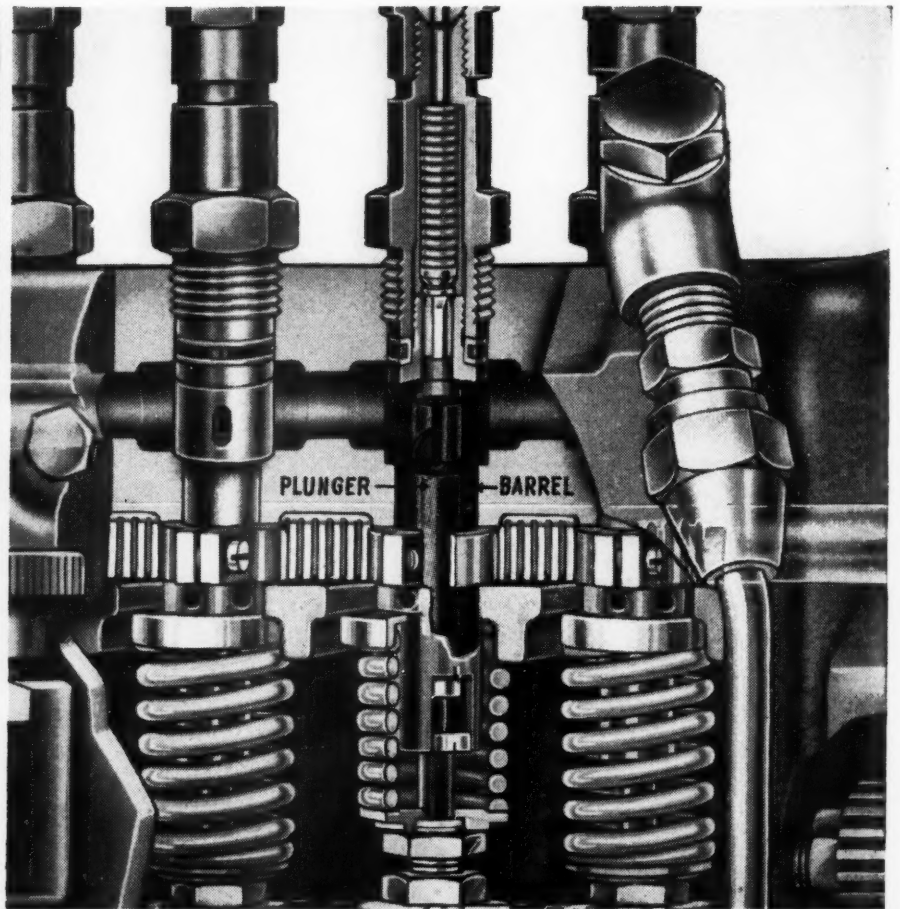
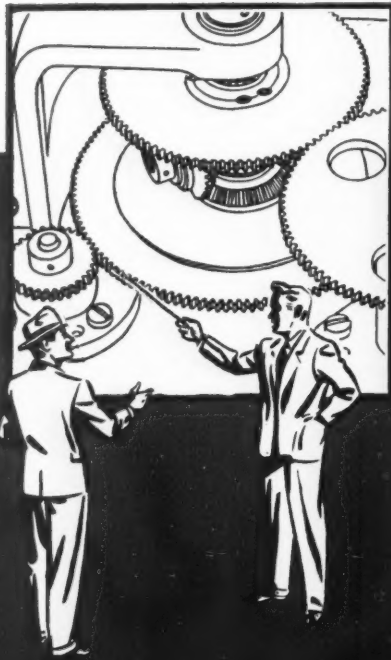
**NORTHWEST**

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

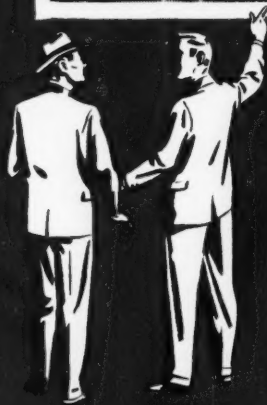


# GOOD FUEL INJECTION

*Has Friendly Parts*



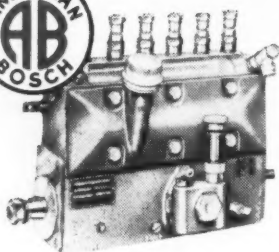
AMERICAN BOSCH Fuel Injection Systems have "friendly" parts. For example, look at the elements that put the fuel under injection pressure, called the plunger and barrel. The fit of these two parts is machined to within a millionth of an inch. So the working surfaces of materials are engineered to make sure that the mating of each component are stable and that they will remain that way.



ALL PARTS of American Bosch Fuel Injection Systems are "friendly" parts. The result is better performance for longer life — and lower maintenance. That's why American Bosch equipment is standard on the world's Diesel Engines.



*Write for a complete directory of American Bosch authorized service stations.*



AMERICAN BOSCH CORPORATION, SPRINGFIELD 7, MASS.

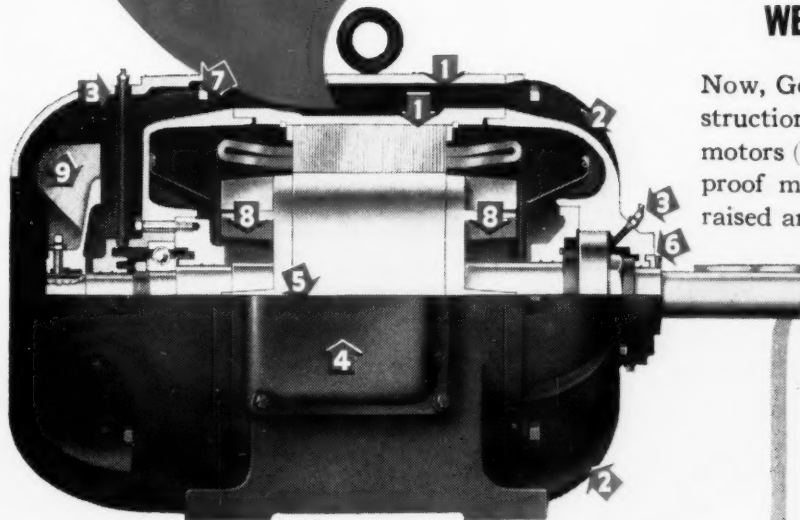
## AMERICAN BOSCH

### *Diesel Fuel Injection*

# A DOUBLE WALL

## *Keeps trouble out*

**NEW TRI/CLAD TOTALLY ENCLOSED MOTOR  
IS MORE FULLY PROTECTED FROM DUST, DIRT,  
WEATHER, OR WHAT-HAVE-YOU . . .**



### FOR EXTRA-SEVERE JOBS

Applications amid dust, metal filings, coolants, or corrosive agents, where totally enclosed motors have always been required, will now have the benefit of a stronger armor, plus convenience features that simplify installation and servicing.

### FOR EXTRA-WET LOCATIONS

Indoors or out, these Tri-Clad totally enclosed motors will take hoseings or heavy rains without danger of shut-down. The cast-iron frame is strongly resistant to rust and corrosion.

### FOR EXTRA LONG LIFE

Many motor users are making the totally enclosed motor their standard for *all* jobs—based on evidence of long-term savings. This new member of the Tri-Clad line makes this decision more logical than ever.

### HAZARDOUS ATMOSPHERES

"Companion motors" to the standard Tri-Clad totally enclosed, the new explosion-proof and dust-explosion-proof types are tested and listed by Underwriters' Laboratories for Class I Groups C and D, and Class II Group E, F, and G.

## THESE 9 POINTS

of new strength and serviceability put  
this Tri-Clad totally enclosed motor way  
ahead

1. A cast-iron, double-wall frame that completely encloses windings and punchings
2. Ribbed cast-iron end shields, machined to provide a tight seal, yet easily removed
3. Well proved pressure-relief greasing systems which can be packed with a long-life lubricant where advisable
4. Cast-iron conduit box diagonally split for wiring convenience (independently explosion-proof on explosion-proof motors)
5. Leads are sealed in a nonshrinking compound at the point where they emerge from frame
6. Rotating, labyrinth seal prevents infiltration of grit or liquids
7. Large, free-flowing, easy-to-clean air passages protect parts from accumulation of dust and foreign matter
8. Modern "ageless" insulation treatment includes Formex<sup>®</sup> magnet wire
9. Powerful external fan is removable, simplifying maintenance. (Nonsparking type for explosion-proof motors.)

**AND IN ADDITION**  
— compactness and short length promote ease of handling and installation.

\*Trade-mark Reg. U.S. Pat. Off.



**GENERAL ELECTRIC**

750-257C-8068

### FOR THE COMPLETE STORY

**GENERAL ELECTRIC COMPANY**  
Apparatus Dept., Schenectady 5, N. Y.

Please send me GEA-4400, which describes the new Tri-Clad totally enclosed motor.

Please send me GEA-4131, "Motors and Control for Hazardous Locations."

Name

Company

Address

# Prevent Rust

ON THE JOB or in the yard, contractors equipment of all types needs protection against rust. *Texaco Rustproof Compound* assures *positive* protection. It is easy to apply, long lasting and economical.

*Texaco Rustproof Compound* fights rust three ways. It 1) prevents rust from forming; 2) penetrates existing rust and stops further rusting; and 3) loosens existing rust, makes it easy to remove.

*Texaco Rustproof Compound* forms a soft, self-healing, *water-proof* film — easy to brush on, easy to remove. A single application usually protects for a whole year. Because of its proved effectiveness, *Texaco Rustproof Compound* is widely used wherever metal is subject to rust and corrosion.

Order *Texaco Rustproof Compound* from the nearest of the more than 2300 Texaco distributing plants in the 48 States. Write for your copy of our 36-page book "Rust Prevention." The Texas Company, 135 East 42nd Street, New York 17, N. Y.

#### MANY USES FOR TEXACO RUSTPROOF COMPOUND

Metal construction equipment of all kinds, also gas holders, water works, sewage disposal plants, bridges — wherever metal is exposed to weather or corrosive chemicals and fumes — *Texaco Rustproof Compound* provides safe and economical protection. For example —

A Pennsylvania County Commissioner writes: "We have been using your Rustproof Compound for the last two years to protect our bridges in this County. Up to this writing we have coated some seven or eight bridges with splendid results. In the near future we intend to coat more of the bridges here."



TUNE IN THE  
TEXACO STAR THEATRE  
WITH JAMES MELTON  
EVERY SUNDAY NIGHT  
— CBS



# TEXACO



# Rustproof Compound

# ALL THESE JOBS . . . *done faster* with *Thor* **PORTABLE POWER**

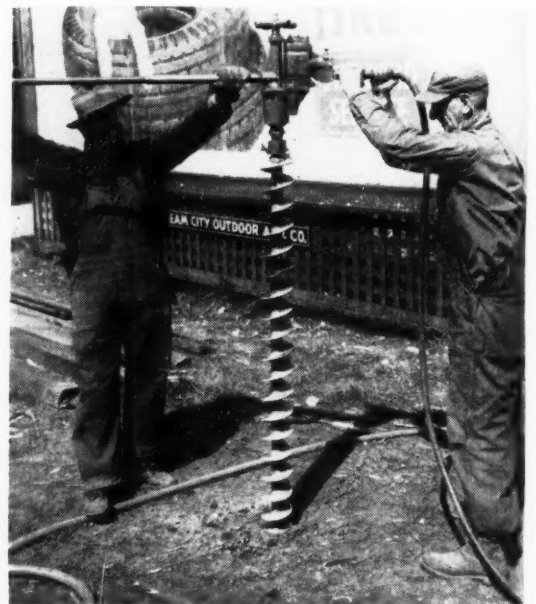
**. . . NO MATTER WHAT THE WEATHER OR SOIL CONDITIONS!**

On dozens of jobs like those shown **here**, THOR Portable Power Tools speed the work and cut costs. Hard rock or shale, frozen or drought-hit soil . . . whatever the conditions . . . however tough the going, you'll do every job easier, faster and at greater profit.

Power-packed Thor Tools are fast and smooth in operation, light and compact for easy handling. Other outstanding features include instant starting, positive control and extra rugged construction. Thor's famous *air-thrifty* valves get more work from all the air—at minimum cost.



**THOR SINKER ROCK DRILLS**, light, medium and heavy duty models for fast, powerful work in all formations.



**THOR 264RY Air Drill with auger steel:** ". . . a mechanical digger that works wonders. We enjoy freedom from the arduous digging of post holes. We now have uniform depth of holes, which adds increased safety and freedom from 'blowdowns'."



**THOR 412 Clay Diggers:** ". . . readily breaks through frost or dry clay, trims up the sides of the holes and cuts tree roots or sod easily, with little human effort."

at less operating cost....

## TOOLS



**THOR 60BFT Tamper:** "Gives immediate, firm support to posts, such as we used to achieve only after the board had been built for years."



**THOR PAVING BREAKERS** do fast demolition on pavements, columns, walls, piers, foundations, etc.



**THOR SUMP PUMPS** with their self-priming, centrifugal impeller-type construction operate with high efficiency in oil, sludge, sewage or dirty water.



**THOR PS12 Pneumatic Saw:** "... cuts all types of lumber on the job."

Put your operations on a more profitable basis. Now . . . today, call your nearest Thor contractors' tool distributor, or THOR branch office for an immediate demonstration of THOR Air Tools. Prove to yourself that they are tops as time-savers and profit-producers.

### INDEPENDENT PNEUMATIC TOOL COMPANY

600 W. Jackson Boulevard, Chicago 6, Illinois

Birmingham	Boston	Buffalo	Cleveland	Detroit	Los Angeles
Milwaukee	New York	Philadelphia	Pittsburgh	St. Louis	St. Paul
Salt Lake City	San Francisco	Toronto, Canada		London, England	

# Thor

PORTABLE POWER

# TOOLS

PNEUMATIC TOOLS • UNIVERSAL AND HIGH FREQUENCY ELECTRIC TOOLS • MINING AND CONTRACTORS TOOLS

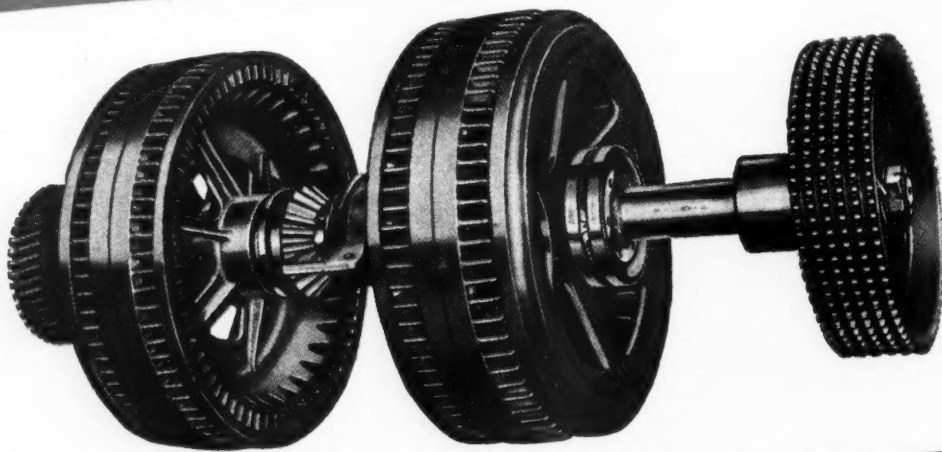
# WE ENDED SWING FRICTION TROUBLES by Removing the Cause

LOOK TO

**P & H**

FOR ADDED VALUES

You'll never again need lose a day—or even an hour—because of swing friction troubles. Not if you own a P&H Model 1055. *There are no swing clutches!* Instead, there's the P&H Magnetorque Swing Unit. There's no friction—no wear—no mechanical contact whatever between driving and driven members.



ES

ea  
se  
lot  
\$5.  
In-  
ne-  
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s.



## How the Magnetorque Swing Unit Operates

The P&H Magnetorque Unit uses electromagnetic forces to transmit power for swinging. The small amount of current needed is supplied by a little generator on the main engine. Control of current is from the

operator's station. Swinging actions—slow or fast—have cushioned acceleration and deceleration. It's smoother than anything you've ever seen. The Magnetorque also transmits the power for propel movements.

## ANOTHER P&H ADDED VALUE Speeds Operations – Increases Production – Cuts Costs

The P&H Magnetorque Swing Unit, now standard equipment on the P&H Model 1055, results in higher operating efficiencies and steadier digging.

Down time, usually needed for swing clutch maintenance, is converted to production time. It's like adding another work day—or more—each month.

The P&H Magnetorque Swing Unit will last the life of the machine. It's another P&H Added Value that pays for itself many times over.

Experienced construction and mining men who have seen the Magnetorque in action say it's one of the most important excavator improvements in the last 20 years. Ask for full information about it.

P & H

HARNISCHFEGER

CORPORATION

EXCAVATORS • ELECTRIC CRANES • ARC WELDERS

EXCAVATORS

4494 W. National Ave.  
Milwaukee 14, Wis.



HOISTS • WELDING ELECTRODES • MOTORS

# **BRIXMENT MORTAR**

## ***Makes a Better Bond***



To make a good bond with the brick, mortar must be plastic, and stay plastic until the brick is bedded. The



two photographs above show a good comparative test for plasticity—hence for bond. Try this with Brixment mortar!

### **—AND A GOOD BOND IS REQUIRED FOR STRONG, WATER-TIGHT MASONRY**

The first function of a mortar is to form a strong, permanent *bond* with the entire surface of the brick. When such a bond is secured, the result is a strong, water-tight wall.

Brixment mortar makes it possible to secure this kind of bond because:

- (1) Its great plasticity and its high water-retaining capacity allow a more thorough bedding of the brick, and a more complete contact between the brick and mortar.

- (2) It hardens slowly enough to permit deeper penetration and more thorough keying into the pores of the brick.

- (3) Once formed, a bond between brick and Brixment mortar is permanent, because Brixment mortar does not undergo volume changes sufficient to weaken the bond.

Because of these characteristics, Brixment mortar makes a *better, stronger bond*.

**LOUISVILLE CEMENT CO., Incorporated, LOUISVILLE 2, KENTUCKY**  
**CEMENT MANUFACTURERS SINCE 1830**

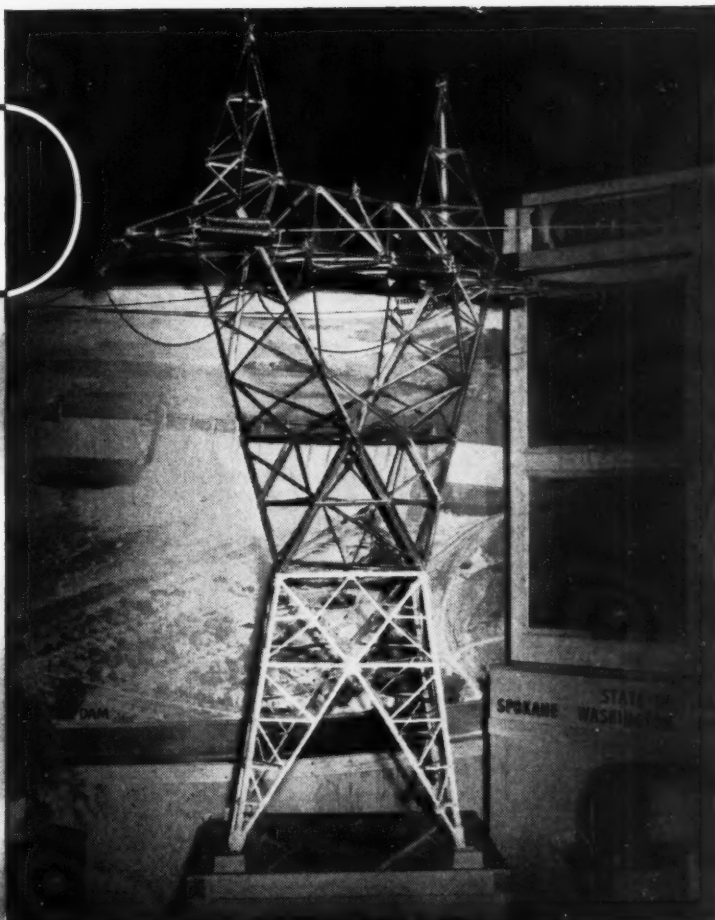
Only a miniature,

but why not  
**ALCOA ALUMINUM**  
in the real towers?

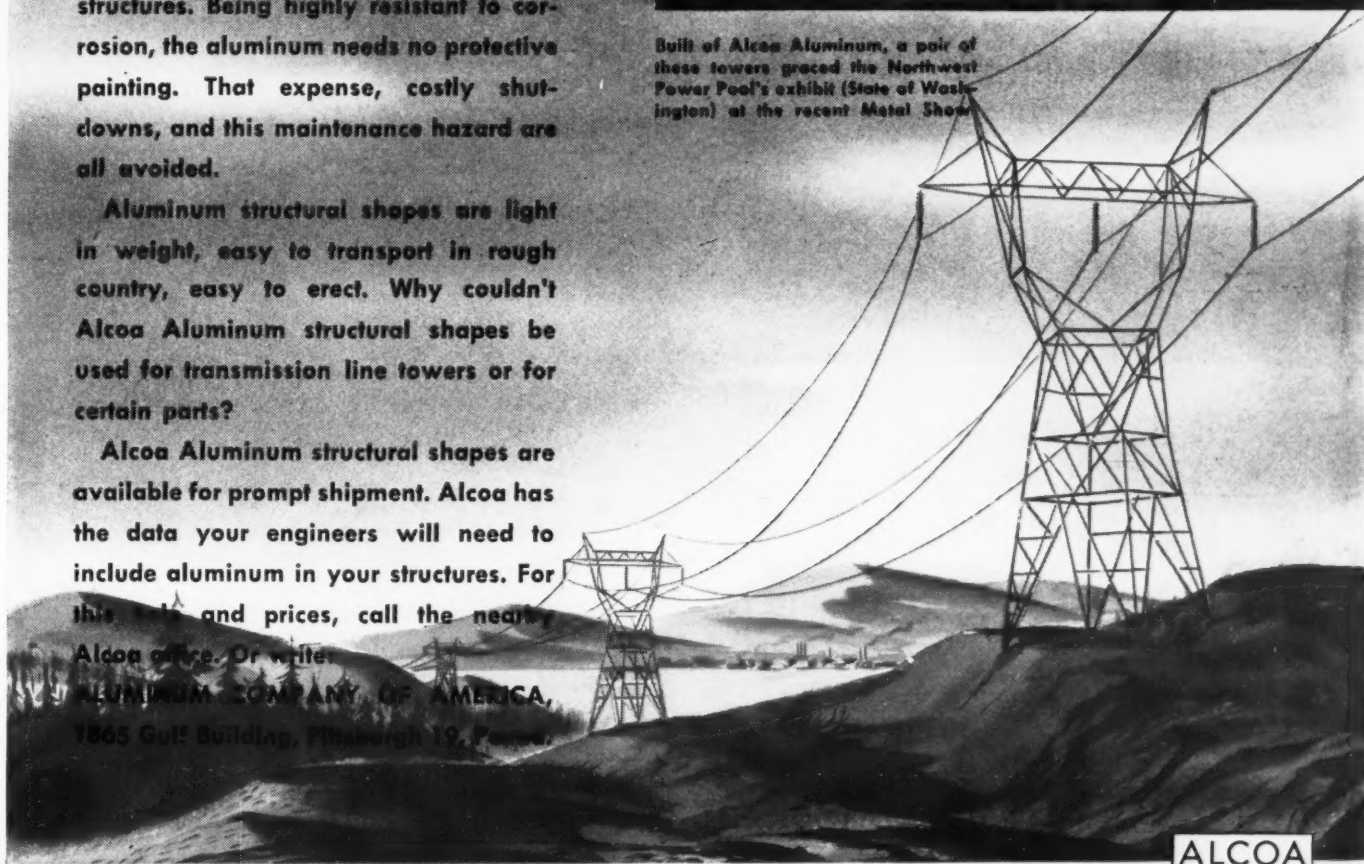
Alcoa Aluminum structural shapes are being used for substations and switch-yard structures, as crossarms on H-frame structures. Being highly resistant to corrosion, the aluminum needs no protective painting. That expense, costly shut-downs, and this maintenance hazard are all avoided.

Aluminum structural shapes are light in weight, easy to transport in rough country, easy to erect. Why couldn't Alcoa Aluminum structural shapes be used for transmission line towers or for certain parts?

Alcoa Aluminum structural shapes are available for prompt shipment. Alcoa has the data your engineers will need to include aluminum in your structures. For this data and prices, call the nearest Alcoa office. Or write:  
**ALUMINUM COMPANY OF AMERICA,**  
1865 Gulf Building, Pittsburgh 19, Penna.



Built of Alcoa Aluminum, a pair of these towers graced the Northwest Power Pool's exhibit (State of Washington) at the recent Metal Show.



**ALCOA** FIRST IN  
**ALUMINUM**



# *A. Guthrie & Company, Inc., uses* **9 TOURNAPULLS** *on* *Northern Pacific* **RELOCATION**



▲ Heap loaded Tournapulls travel up 10 to 20% grade out of channel cut.



▲ Excavated material is spread on 60' fill.

▼ In hard digging . . . LeTourneau Rooter breaks up tough materials for faster loading.

**O**N 25-MILE STRETCH between New Salem and Glenn Ullin, N. D., the Northern Pacific railroad has let contracts for approximately 2½ million yards to eliminate curves, reduce grades and cut mileage 9.3. Contractor A. Guthrie & Co., Inc., St. Paul, Minn., is using 9 Tournapulls on its 7-mile section of this job.

## **Channel change eliminates bridge**

Guthrie's Tournapulls ran into tough digging and stiff grades in excavating channel change 35' deep and 2300' long to divert one stream into another and take both under a single bridge. Material is tough blue clay, hard, brittle, brick-like scoria and seams of coal, which are hauled out of the deep cut up 10 to 20% grades. Usable material is





Channel change 25' deep, 2300' long diversion line from into another, eliminating bridge.

spread on the new right-of-way to build a 60' fill.

### Round trips vary from 5,280 to 12,800'

On a 1-mile cycle each Tournapull averaged better than 6 trips an hour. This round-trip time included pulling loaded up 350' of 10 to 20% grade and traveling over a 1200' stretch of 7 to 8% adverse grade on return to the cut.

On another section of the job, Tournapulls maintained this high rate of production. Each rig delivered 3½ loads per hour on

12,800' cycles. Good job layout, well-maintained haul roads, plus the use of LeTourneau Rooters to speed loading in the tough materials, enabled Guthrie to take full advantage of the production capacity of his high-speed, rubber-tired Tournapulls.

Successful contractors everywhere are profitably solving earthmoving problems with Tournapulls. Ask your LeTourneau Distributor for job-proved facts and figures on what Tournapulls can do for you in all types of materials, on long and short hauls and under tough job conditions.

Tournapull, Rooter — Trade Mark Reg. U. S. Pat. Off. RR11C



Overall view of N. P. rail relocation which shortens line 9 miles between New Salem and Glenn Ullin, N. D.

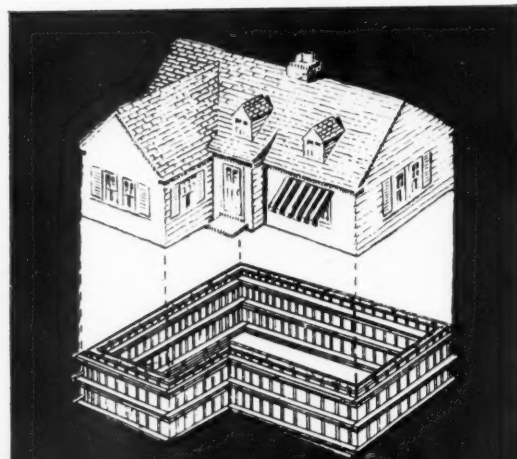
**LETOURNEAU**  
PEORIA, ILLINOIS



**TOURNAPULLS**

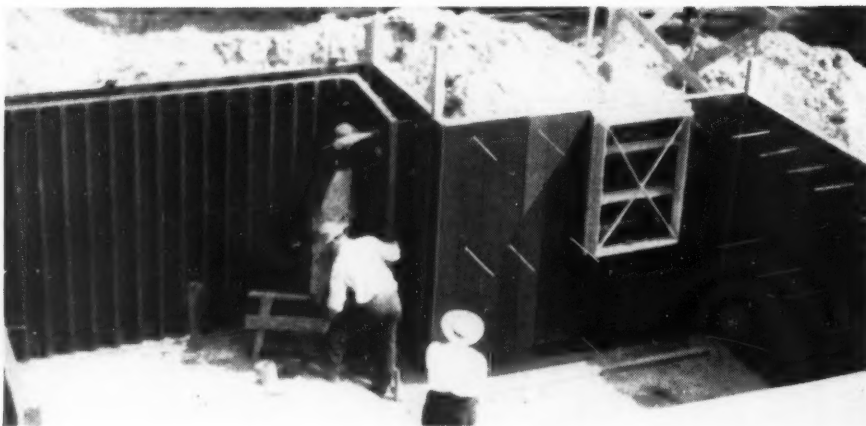
FOR LOWEST NET COST PER YARD

# A Poured Concrete Foundation Complete in ONE Day



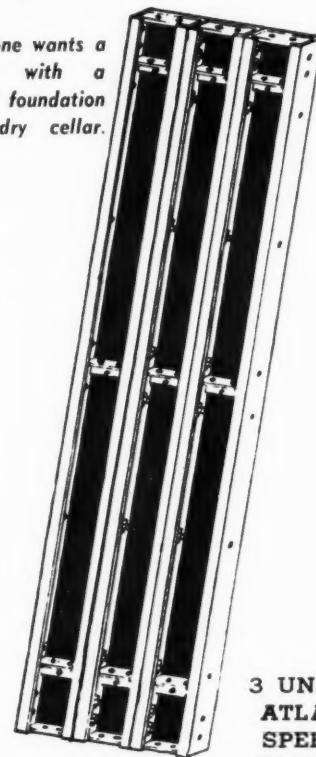
## ATLAS LABOR-*SAVING* *SPEED* FORMS

**For Rent or Sale**



Easy to set up, strip and move. Light weight, averaging only 35 lbs. per unit. Inserts easily and accurately accommodated. Strong—no studs or joists required as with wood forms. Durable—can be used over and over indefinitely. Leave a smooth uniform finish—No Grain Marks—Nothing to Remove.

*Everyone wants a house with a sound foundation and dry cellar.*



**3 UNITS  
ATLAS  
SPEED  
FORMS**

### Some New Users

H. K. Ferguson Eng. Co., Cleveland, Ohio—  
Sherwin Williams Plant, Cleveland, Ohio,  
Homer T. Borton, Arch.  
Wigton Abbot Co., Celanese Corp., Bldg.,  
Belvedere, N. J.  
F. H. McGraw, Oceanport, N. J., Monmouth  
Park Jockey Club  
Brown & Matthews, Inc., N. Y. C.—E. R.  
Squibb Plant, New Brunswick, N. J.  
Hillsmith & Co., Dayton, Ohio—Sears Roebuck & Co. Store, Dayton, Ohio, Nimmons,  
Carr & Wright, Arch. Engrs.  
Donald M. Love, Philadelphia, Pa. Housing  
Project  
Benoit's Red-E-Mix Concrete Co., Bontiful,  
Utah, Housing Project  
Henry W. Streeter, Car., Elmira, N. Y.—  
Moore Business Forms, Inc., Bldg., Duane  
Lyman & Assoc., Arch.  
Island Dock Co., Inc., N. Y.—Swimming Pools  
Kingston Contracting Co., Lebanon, Pa.—  
Dam  
Gunita Service Corp., Philadelphia, Pa.—  
Housing Project

A HOUSE FOUNDATION a day at a tremendous saving in cost is easy with Atlas SPEED Forms—the new process for concrete construction which makes it simple to strip, move and set up form work accurately to suit any building condition.

In heavy construction, too, contractors are amazed at the savings they make and order again and again. Savings of 25% and more are not unusual in apartment house, department store, factory and water work construction. Ask any of the users and find out first-hand.

*Economical to Rent or Buy—Available for  
Early Delivery.*

Write for Illustrated Folder

## Irvington Form & Tank Corporation

IRVINGTON 13, N. Y.

Write Dept. CM

NEW YORK CITY SALES OFFICE—43 CEDAR STREET  
Tel. BOWling Green 9-4030

**Atlas Labor-Saving Concrete Forms for every Purpose**



## *It's Knowing How that Does It!*



Landing the "big fellows" is not a matter of chance or "tackle". To be successful, one must acquire the knack and "know-how".

And so it is with making Wire Rope.

Machinery and equipment alone will not necessarily produce a Rope qualified to meet every contingency... it's knowing how to make it that really counts, and "HERCULES" (Red-Strand) Wire Rope is the result of over sixty-eight years of manufacturing experience, *plus* continued research and determination to produce the best.

So, by adopting the Red Strand as your Wire Rope guide, you gain the advantage of getting the right construction to fit your particular job, as well as dependable and economical results... *consistently*.

MADE ONLY BY

# **A. LESCHEN & SONS ROPE CO.**

WIRE ROPE MAKERS

5909 KENNERLY AVENUE

NEW YORK 6 . . . 90 West Street  
CHICAGO 7 . . . 810 W. Washington Blvd.  
DENVER 2 . . . 1554 Wazee Street

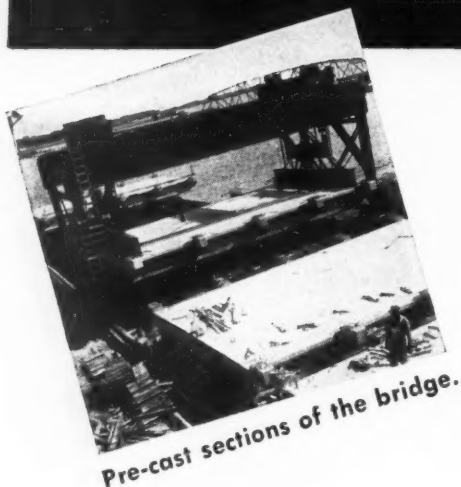


ESTABLISHED 1857

ST. LOUIS 12, MISSOURI, U. S. A.

SAN FRANCISCO 7 . . . 520 Fourth Street  
PORTLAND 9 . . . 914 N. W. 14th Avenue  
SEATTLE 4 . . . 3410 First Avenue South

# THIS UNUSUAL BRIDGE JOB REQUIRED A DEPENDABLE PILE HAMMER



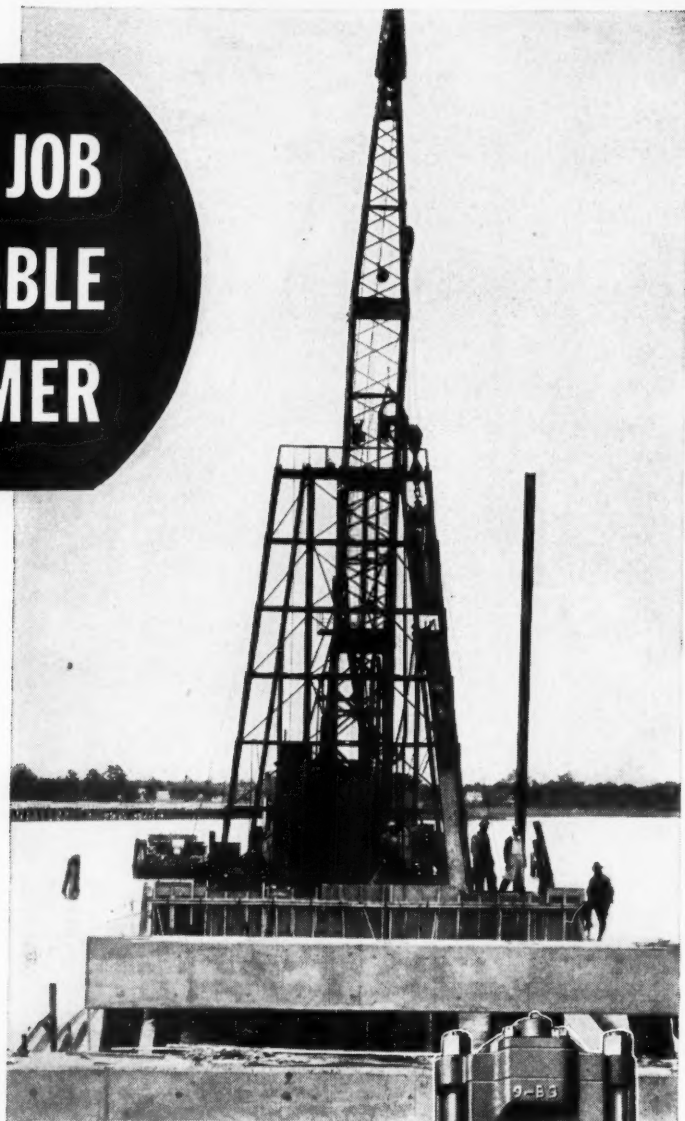
Pre-cast sections of the bridge.

In constructing the new reinforced concrete highway bridge at West Point, Va., the Diamond Construction Company, of Washington, D. C., employed a "production line" procedure of precasting the entire bridge in 40-foot sectional spans, installing them section by section.

To support these spans, precast concrete piles had to be driven, in bents of five piles each, through soil ranging from coarse sand to dense blue clay under water.

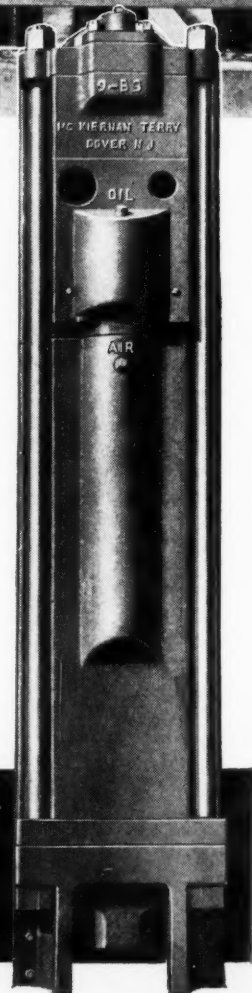
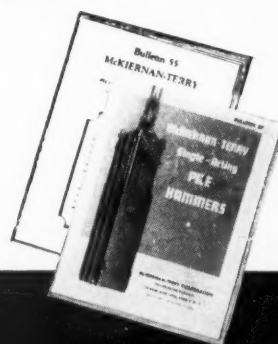
The powerful McKiernan-Terry Pile Hammer selected for this job again demonstrated the versatility, efficiency and dependability for which McKiernan-Terry Hammers have long been famous.

No pile-driving job is too unusual for McKiernan-Terry Hammers to handle. And they are now available for prompt delivery in a standard line of 10 double-acting hammers, 5 single-acting hammers and 2 double-acting extractors.



Operating in a specially constructed steel-frame five-pile guide, this McKiernan-Terry Pile Hammer drove sets of five piles comprising each bent without need of shifting the floating rig.

**FOR FULL INFORMATION**  
on McKiernan-Terry Pile Hammers, write for Bulletins, No. 55 and No. 57.



MK-1001

**McKiernan-Terry**  
CORPORATION  
Manufacturing Engineers

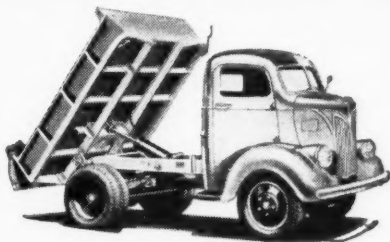
14 Park Row

New York 7, N. Y.

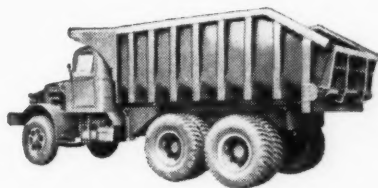
# The BEST COSTS LESS

TRADE MARK

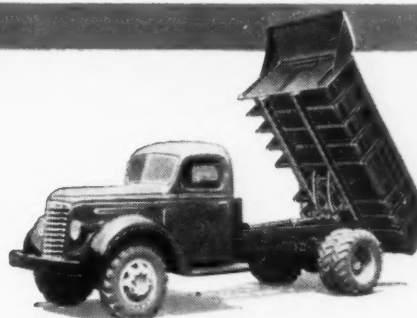
For years Gar Wood has consistently offered truck and trailer equipment of utmost utility and outstanding value. Leadership in this field resulted from this policy. Gar Wood equipment costs less in the long run because it is better built to give peak performance and lasting satisfaction.



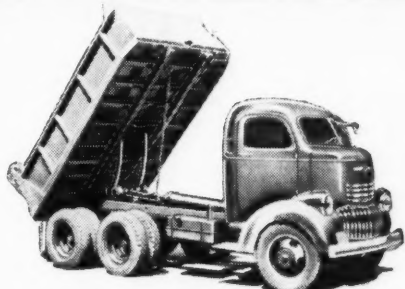
Type C12 Body and Model D6 or D7 Hoist. Dumping angle 55°.



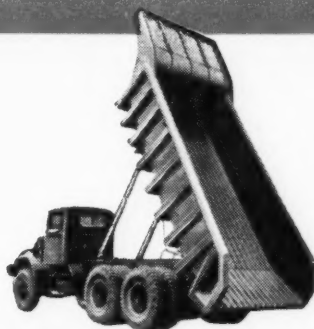
Type X-112 Extra heavy duty Body with automatic downfolding tailgate.



Special rock Body, scoop type rear end. Model F4CA cam and roller Hoist.



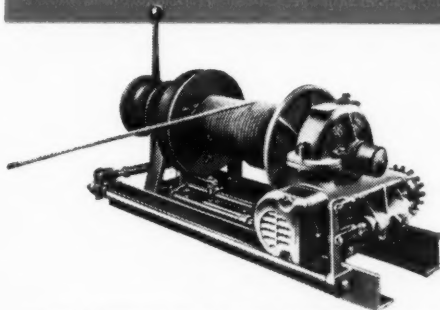
Type W12 Body, Model F4C cam and roller Hoist. Capacity 6 cu. yds.



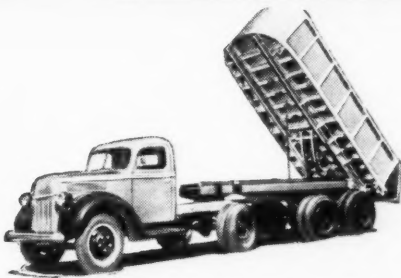
Type X-112 Extra heavy duty Body, scoop end, with Model T-4440 Hoist. Capacity 19 cu. yds.



Type W12 Body, front recessed for Model TV83 Hoist. Capacity 15 cu. yds.



Rapid Reverse truck Winch. Single lever control. Capacities 15,000 to 60,000 pounds line pull.



West Coast Special W-12 Body, Model F8C cam and roller Hoist. Capacity 10 cu. yds.



Telescopic boom Crane. Radius 8 to 20 feet.



## GAR WOOD INDUSTRIES, INC.

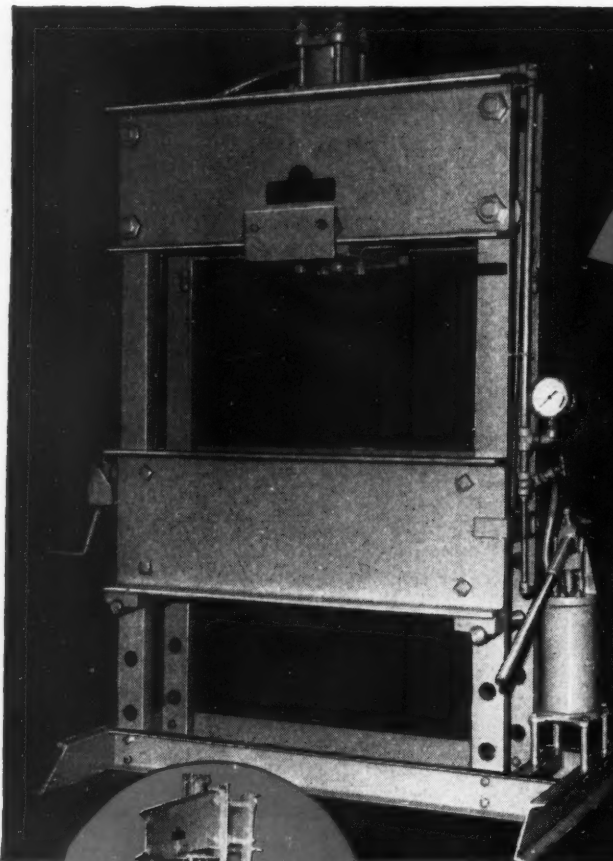
7924 RIOPELLE ST.

DETROIT 11, MICH.

WORLD'S LARGEST MANUFACTURERS OF TRUCK AND TRAILER EQUIPMENT

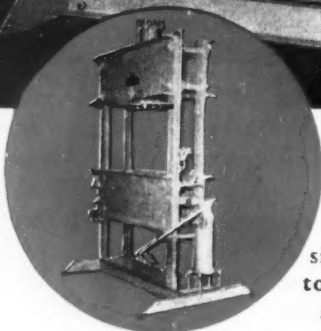
OTHER PRODUCTS: TRUCK TANKS ROAD MACHINERY HEATING EQUIPMENT MOTOR BOATS

# RODGERS SHOP PRESSES



**100-150 TON**  
*rugged and flexible*

... for  
tough maintenance,  
service and  
special work ...



The improved Rodgers Heavy Duty Shop Presses are designed to handle those 101 tough pressing, squeezing and forcing jobs you run up against so often. Both

the 100 and 150 ton models offer a versatility of use not found in any other tool.

Rodgers Shop Presses have a moveable bolster which is simply raised or lowered by a crank and positioned by pins in the frame. The cylinder is adjustable across the entire frame width and may be mounted inside the top frame or suspended below it. Open sides of the frame allow long pieces to extend beyond width of the press. Construction is of rolled steel plate. Power is supplied by the Rodgers 4-speed Hand Pump conveniently mounted on the side. A Rodgers Power Pump Unit is available when desired.

You will save time, labor and trouble with a Rodgers Shop Press — write for details.

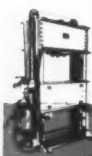
## SPECIFICATIONS

100 TON SHOP PRESS			
Model No. 108A		Bolster Opening	
Specifications	Standard	18"	24"
Overall Height—6 1/2" Ram Travel.....	85 1/2"	85 1/2"	85 1/2"
Overall Height—13" Ram Travel.....	94 3/8"	94 3/8"	94 3/8"
Floor Space — Base.....	44"x63 3/8"	44"x63 3/8"	44"x63 3/8"
Hoist Extends Beyond Base.....	9"	9"	9"
Pump Handle Extends Beyond Base.....	13 1/4"	4 1/2"	7 1/2"
Width Between Side Members.....	45"	45"	45"
Depth Between Side Members.....	8 1/2"	14"	20"
Depth Between Bolsters (Work Table).....	12 1/2"	18"	24"
Maximum Daylight.....	35"	35 1/2"	35 1/2"
Minimum Daylight.....	7"	7 1/2"	7 1/2"

150 TON SHOP PRESS			
Model No. 109A		Bolster Opening	
Specifications	Standard	18"	24"
Overall Height—7 1/2" Ram Travel.....	89"	89"	89"
Overall Height—13" Ram Travel.....	97 1/4"	97 1/4"	97 1/4"
Floor Space — Base.....	44"x70 1/2"	44"x70 1/2"	44"x70 1/2"
Hoist Extends Beyond Base.....	9"	9"	9"
Pump Handle Extends Beyond Base.....	13 1/4"	4 1/2"	7 1/2"
Width Between Side Members.....	48"	48"	48"
Depth Between Side Members.....	8 1/2"	14"	20"
Depth Between Bolsters (Work Table).....	12 1/2"	18"	24"
Maximum Daylight.....	35 1/2"	35"	35"
Minimum Daylight.....	7 1/2"	7"	7"

Matched set of "V" blocks are included as standard equipment for both 100 and 150 ton presses.

The new Rodgers "Sixty"—60 ton Shop Press has the same features as the larger models—ideal for hundreds of uses. Write for literature.



Shop Presses

# Rodgers Hydraulic, Inc.

hydraulic power equipment

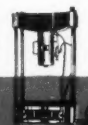
7403 Walker St., St. Louis Park, Minneapolis 16, Minn.



Crawler-Track Presses



Power Pump Units

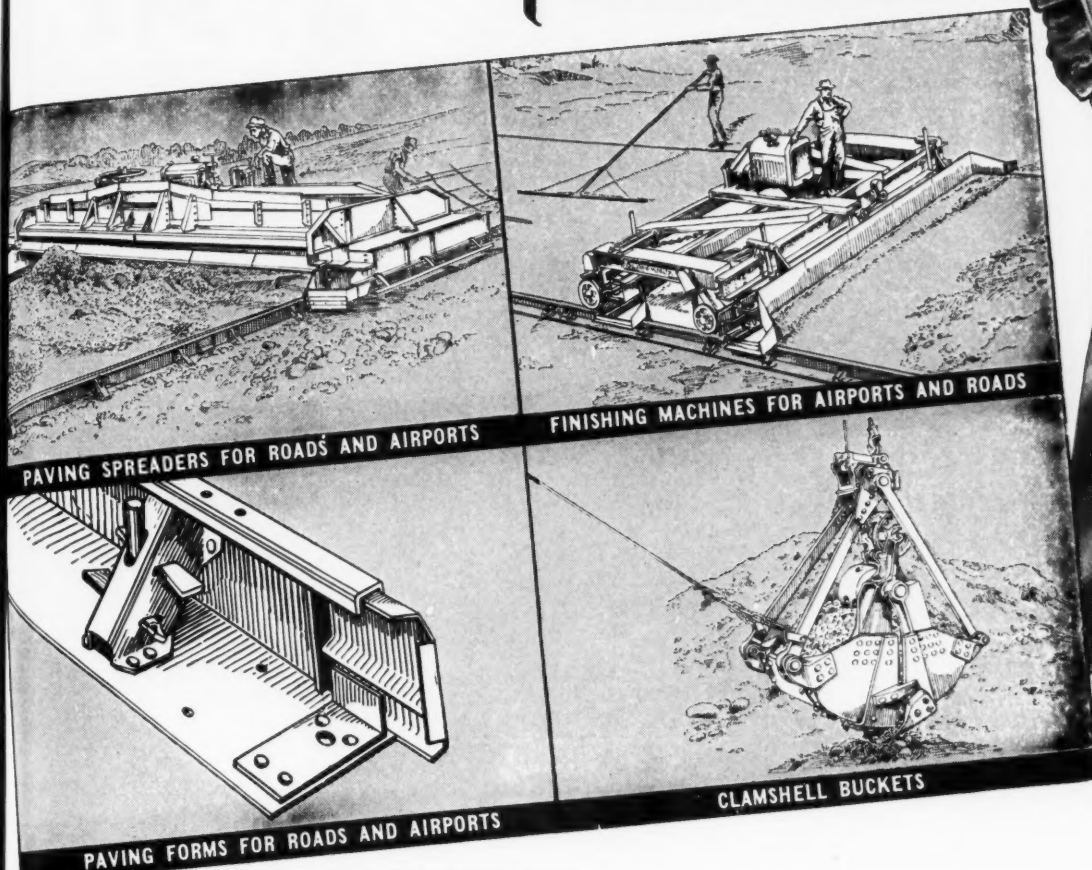


Portable Presses

# BLUE RIBBON PERFORMANCE

## MEANS

**Record Smashing Profits  
High Quality Performance  
Lower Costs and Greater Earnings**



### *Blaw-Knox Construction Equipment offers all three!*

Where high speed construction is imperative, either to meet a tight schedule or to make up for unforeseen delays, you can bank on Blaw-Knox Equipment getting the job done quicker.

Where quality of work has to satisfy the requirements of rigid inspection, the Blaw-Knox equipped contractor can depend on his machinery.

Earlier completion and high quality performance through the use of Blaw-Knox Construction Equipment mean cost reduction and larger profits.

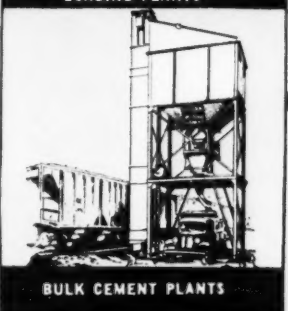
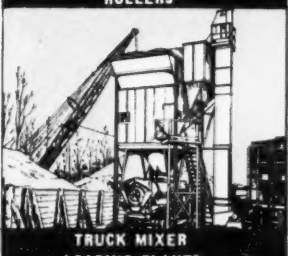
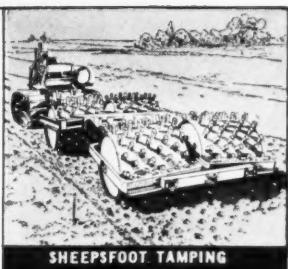
The features you are looking for — the factors that mean Blue Ribbon Performance — are built into Blaw-Knox batchers and forms, buckets, spreaders and finishers, etc. Experience of our armed forces overseas and of contractors everywhere, bears this out.

For details — photos — performance data, write for Bulletin No. 2036.

BLAW-KNOX DIVISION of Blaw-Knox Co.  
2086 Farmers Bank Bldg. Pittsburgh 22, Pa.

# BLAW-KNOX

## CONSTRUCTION EQUIPMENT



# 3 New



Adams is proud to announce three new post-war motor graders—all possessing outstanding features . . . *in design—in construction—in operating efficiency and economy.*

The new Adams Motor Graders are products of more than five years of intensive research and development effort. Among other important improvements, all three machines feature Adams' high-arch front axle, giving

Adams machines greater axle clearance than any other graders. Axle bulldozing is eliminated—larger windrows of earth and oil mix are moved—*better, faster, cheaper.*

These new machines are by far the finest in Adams' long history . . . *more powerful—more rugged—more economical to operate and maintain.* Ask your local dealer about Adams—*America's No. 1 Motor Graders.*

**J. D. ADAMS MANUFACTURING CO., INDIANAPOLIS 6, INDIANA**

# Adams Motor Graders

**ALL WITH HIGH-ARCH FRONT AXLE**

## **No. 512—DELUXE HEAVY-DUTY MACHINE**

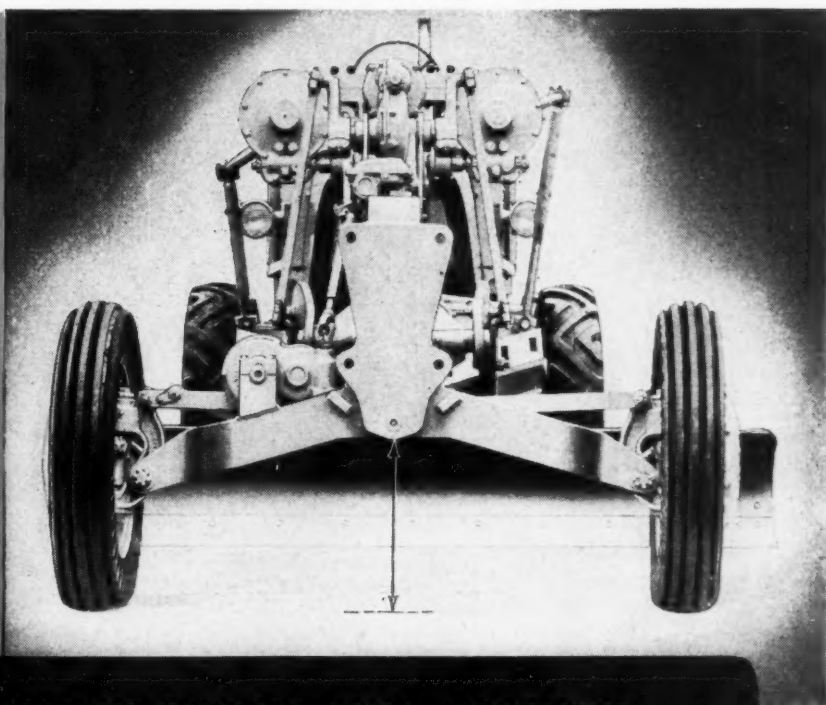
A large, rugged motor grader, possessing exceptional power and stamina. Machine is built extra strong throughout to stand up to continuous severe service under difficult operating conditions.

## **No. 414—HEAVY-DUTY MACHINE**

This machine is equipped with same engine as the No. 512, but is not quite as heavy. Powerful and versatile, it is capable of handling all average surface, ditch and bank operations on a high production basis.

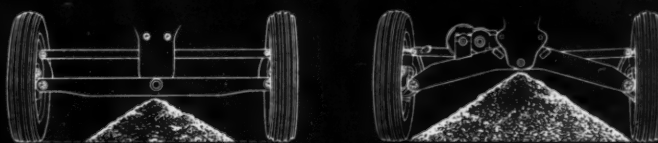
## **No. 312—MEDIUM-DUTY MACHINE**

Economical to buy and operate, this machine has all blade positions of larger models. Widely used by cities, townships and counties for a wide variety of construction and maintenance work.



## **HIGH-ARCH FRONT AXLE INCREASES CAPACITY—SPEEDS OPERATIONS**

The Adams high-arch front axle provides approximately twice the capacity of conventional axles for straddling large windrows of material, as illustrated by accompanying sketches. Thus, bulldozing of axle through material is eliminated—no waste of power, no loss of operating speed.



# ADAMS

**ROAD-BUILDING AND  
EARTH-MOVING EQUIPMENT**

**MOTOR GRADERS • LEANING WHEEL GRADERS • ELEVATING GRADERS**

This Marion type  
7400 Dragline  
walks to work...  
with the aid of  
*Enginairing*

Where ordinary heavy equipment would bog down like a cow in a swamp, this Marion Dragline moves as sure-footedly as a mountain goat. It skirts steep slopes, stretches its 175-foot boom out to lift coal from 125-foot pits, recovers fuel that had been considered inaccessible—because it learned to walk!

A Fairbanks-Morse diesel engine powers a walker shaft, which alternately raises and lowers a pair of supporting feet and the dragline base so the giant machine moves backward or forward. Control of this action presents a real problem. For speed, the walkers must travel rapidly in their free advance. For smoothness and safety, the walkers must contact the ground gently, lift and advance the dragline at a graduated rate.

Here, as in dozens of other cases, "Enginairing" did the job. An automatic device proportions the engine speed to each angular position of the walker shaft, governing movement with a certainty that could not be duplicated by the most expert operator. Merely moving a W·A·B Rotair valve transfers control of engine speed to a W·A·B Flexair valve, for boom operation.

W·A·B Enginairied controls are serving on earthmoving machinery, cranes, hoists, oil rigs and ships. If you are planning the purchase of any of these, be sure to check on the economy and service possibilities of modern Enginairied controls.

**WESTINGHOUSE AIR BRAKE COMPANY**

INDUSTRIAL DIVISION • WILMERDING, PA.



PNEUMATIC CONTROLS

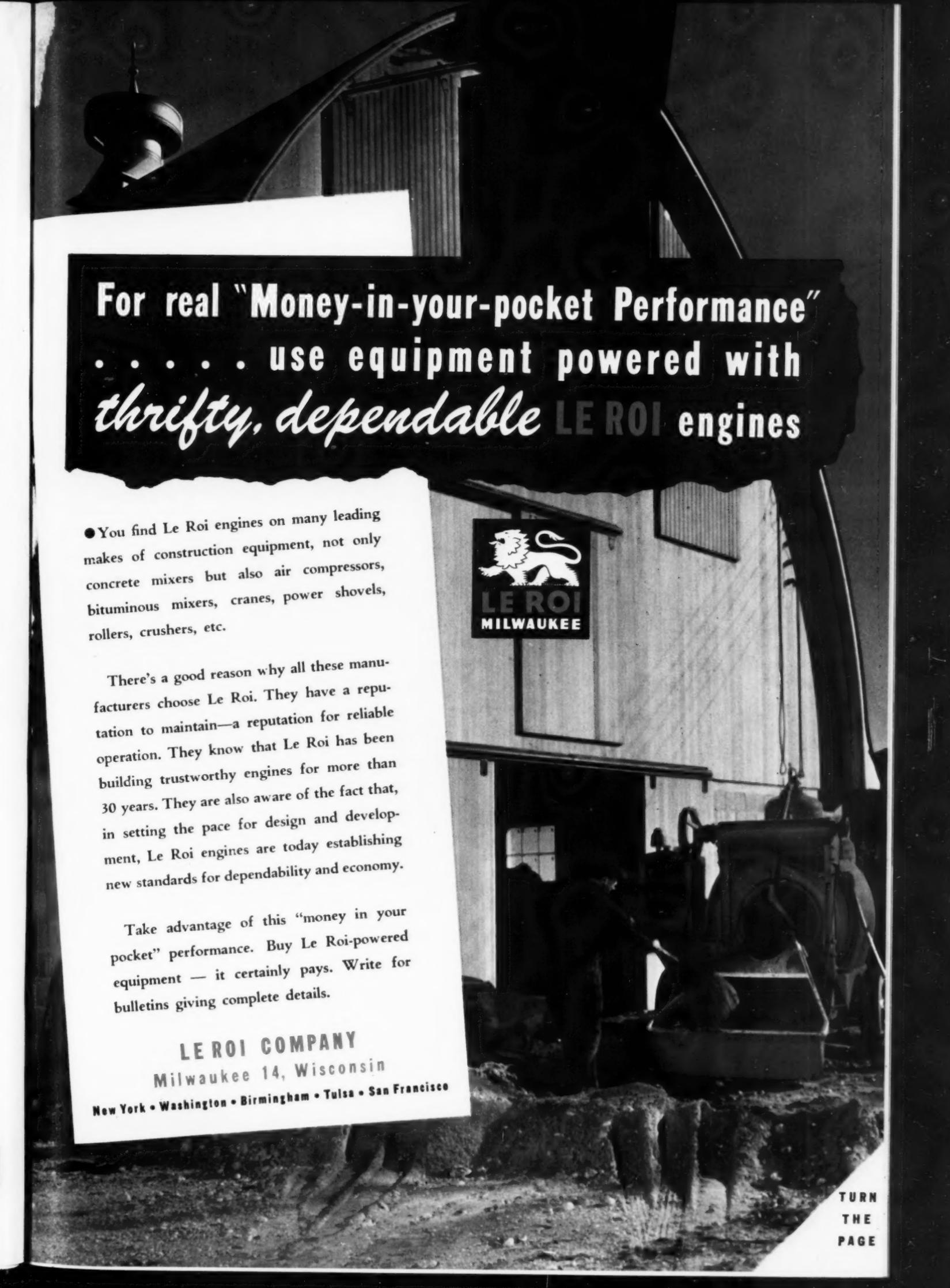


AIR COMPRESSOR



WABCO PACKING





For real "Money-in-your-pocket Performance"  
..... use equipment powered with  
*thrifty, dependable* LE ROI engines

● You find Le Roi engines on many leading makes of construction equipment, not only concrete mixers but also air compressors, bituminous mixers, cranes, power shovels, rollers, crushers, etc.

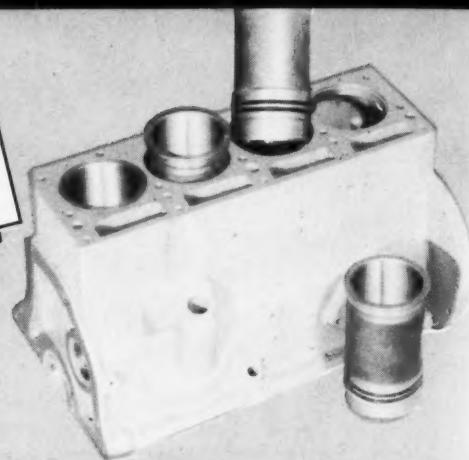
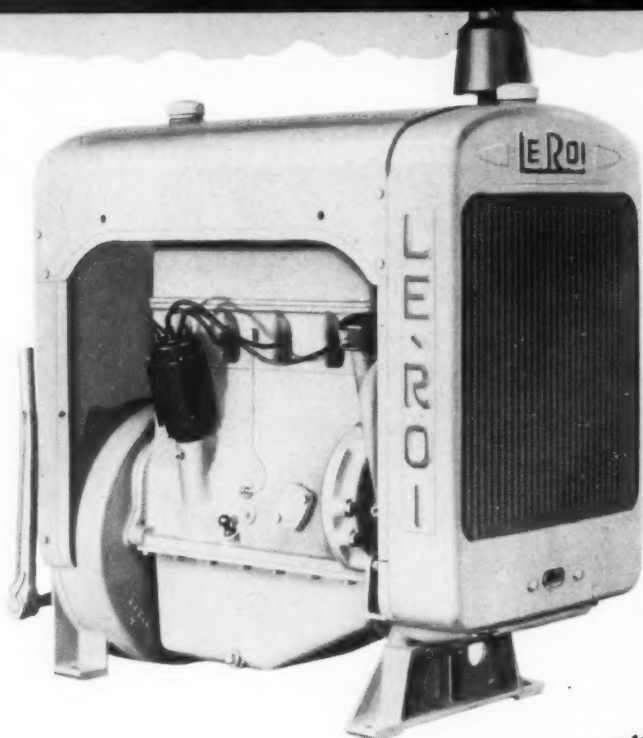
There's a good reason why all these manufacturers choose Le Roi. They have a reputation to maintain—a reputation for reliable operation. They know that Le Roi has been building trustworthy engines for more than 30 years. They are also aware of the fact that, in setting the pace for design and development, Le Roi engines are today establishing new standards for dependability and economy.

Take advantage of this "money in your pocket" performance. Buy Le Roi-powered equipment — it certainly pays. Write for bulletins giving complete details.

**LE ROI COMPANY**  
Milwaukee 14, Wisconsin  
New York • Washington • Birmingham • Tulsa • San Francisco



TURN  
THE  
PAGE



Removable wet-type cylinder sleeves reduce maintenance costs and assure long life.

# FOR More Horsepower Hours per Dollar ... CHOOSE A MODEL D-140 LE ROI ENGINE

Just what does more horsepower hours per dollar mean? Simply this—greater dependability, lower maintenance costs, and better economy. You get all these in the 33 h.p. D-140 Le Roi engine. That is why so many cost-minded engine users are standardizing on this unit. Let's look at some of the D-140's money-saving features:

*Le Roi valve-in-head design* provides greater accessibility, lower maintenance costs, lower fuel consumption, and more power.

*Extra-heavy, drop-forged counterweighted crankshaft* mounted on oversize bearings and balanced statically and dynamically eliminates harmful vibration.

*Removable wet-type cylinder sleeves* remain perfectly cylindrical despite mechanical or thermal disturbances, thus assuring correct fit of the piston rings throughout the life of the engine.

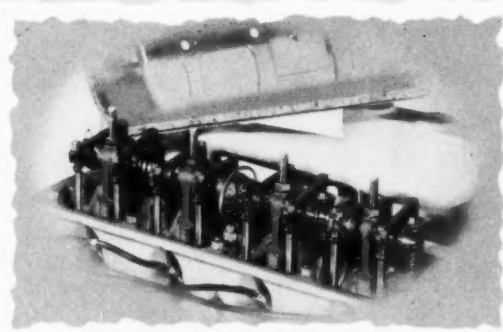
*Hardened steel valve inserts* maintain the accurate seating fit provided at the factory for many thousands of hours of operation.

Besides these features, the D-140 has positive pressure lubrication, specially designed drop-forged connecting rods with precision bearings, oil bath cleaner, and conveniently located controls. That is why you get full measure of economy and dependability from a D-140. See your near-by Le Roi distributor today or write for a bulletin.

## LE ROI COMPANY

Milwaukee 14, Wisconsin

NEW YORK • WASHINGTON • BIRMINGHAM • TULSA • SAN FRANCISCO



The valve-in-head design is the most important single feature of the D-140. It provides more power and greater economy.



The D-140 uses a distributor-type-drive vertical magneto. Brackets are eliminated, misalignment of shafts is avoided, and timing presents no difficulties.



## QUESTION:

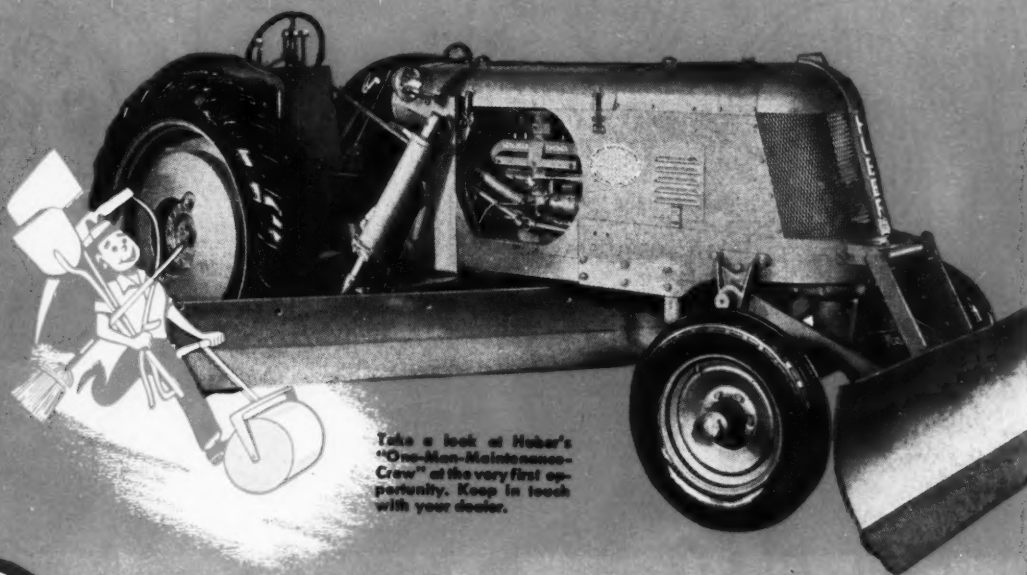
What is My  
**BEST BUY**  
For  
Low Cost  
Maintenance?

## ANSWER:

# A HUBER MAINTAINER

### BECAUSE

- for a single major investment, a Huber performs the eight most important operations in maintaining roads, streets and airports.
- It functions as a maintainer, mower, bulldozer, lift-loader, patch roller, V-type or one-way snow-plow, or rotary broom.
- It is the most modern, economical, and versatile contribution to low cost maintenance in ages.
- It only requires one man to operate.



Take a look at Huber's "One-Man-Maintenance-Crew" at the very first opportunity. Keep in touch with your dealer.

THE

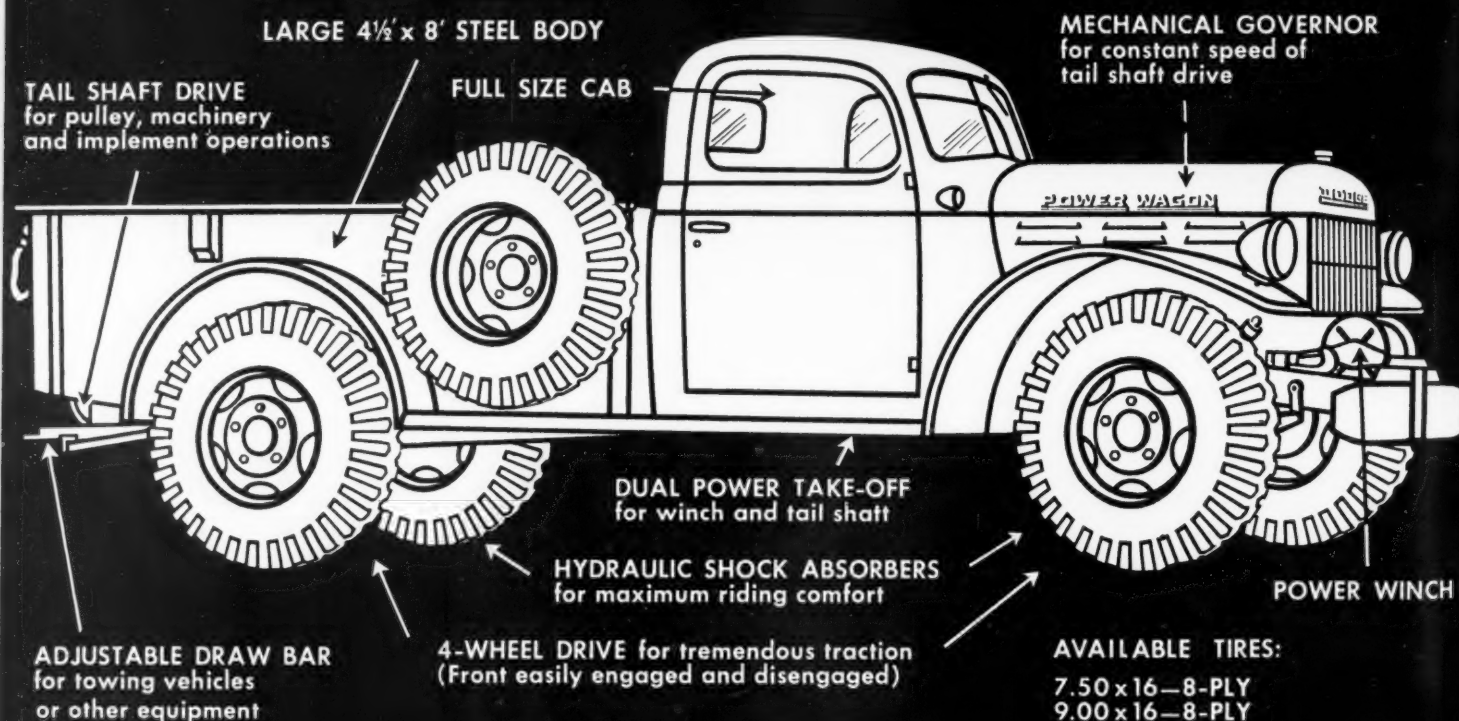


MFG. COMPANY • MARION, OHIO, U. S. A.

# HUBER MAINTAINER

ALSO 3 WHEEL AND TANDEM ROLLERS

# DODGE ANNOUNCES THE POWER



Carries welding equipment, shot drills and other machinery on oil fields.

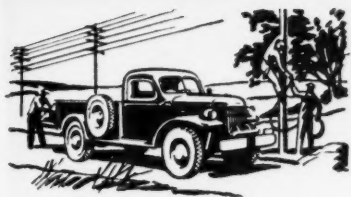


Its powerful winch elevates heavy materials in logging and other industries.

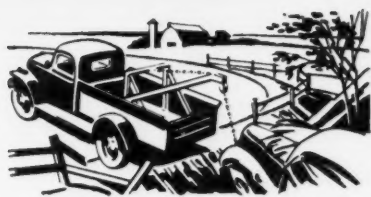


Quarries, mines and gravel pits find plenty of uses for its power and traction.

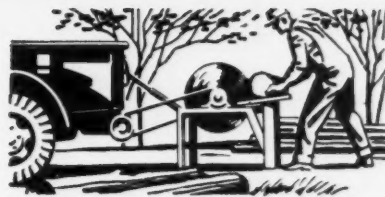
ONLY DODGE BUILDS "Job-Rated" TRUCKS!



Public utilities call it the most versatile vehicle in their fleets.



Its power and traction make it the ideal "wrecker's" car.



Its portable power plant (pulley or shaft drive) is always available.

# POWER-WAGON

**It's a "FULL SIZE" truck for jobs no other truck can do!**

Here's the truck that needs no roads . . . the new and remarkable Dodge Power-Wagon. It's the kind of truck you've hoped someone would build some day.

It's a *full size* truck! It has a full size *body* for your loads. It has a full size *cab* for your comfort. It has full size *power* to go places and do things other trucks can't do.

With four-wheel drive, you can cross fields, plow through deep sand or mud, cross streams and climb tough, rugged hills.

With dual power take-off, it's a "power-house" on wheels. Heavy loads can be hoisted or

pulled with a front-mounted power winch. From pulley-drive and tail shaft you can saw wood, grind grain, and operate a wide variety of machinery and equipment.

Like all Dodge trucks, the Power-Wagon is *Job-Rated* . . . engineered and precision-built to fit the job . . . to save money on the job . . . and to last longer.

Chances are that *you* have a job that the Power-Wagon can do *better* than any other vehicle. See your Dodge dealer now. See the Power-Wagon. See what it can do for you on your job.

DODGE DIVISION OF CHRYSLER CORPORATION

## POWER-WAGON FEATURES

Six-cylinder, 94-H.P.  
Job-Rated Engine.

Four-wheel Drive (Disengagement for rear wheel drive).

Full Floating Front and Rear Axles.

Heavy-duty, double-acting Shock Absorbers.

4-speed Transmission—2-speed Transfer Case (8 Forward Speeds—2 Reverse Speeds).

High Traction Tread Tires.

### AUXILIARY EQUIPMENT

Power Take-off • Power Winch • Pulley-Drive • Tail Shaft • Draw Bar, Front Tow Hooks, and Pintle Hook

**WANT MORE  
INFORMATION?  
MAIL THIS  
COUPON TODAY**



Truck Sales Dept., Dodge Division  
7906 Joseph Campau Ave., Detroit 11, Michigan

Please mail me  
available literature  
illustrating and  
describing The  
POWER-WAGON.

NAME .....

TYPE OF BUSINESS .....

ADDRESS .....

CITY AND STATE .....



### "He says that Rex doesn't ride . . . it floats!"

Rex is the *only* truck mixer with the cushioning chain belt drive that encircles the drum . . . absorbing road shocks, the jolts of starts and stops with a loaded drum and eliminating vibration.

So effective is the "cushioning" ability of this chain drive that Rex Moto-Mixer drivers are never conscious of vibration . . . concrete

evidence that operation of a Rex Moto-Mixer is far less fatiguing on men *and machine*.

Check this and other outstanding Moto-Mixer features with your Rex Distributor. Or, if you prefer, write for your copy of the new Bulletin No. 467 that tells the complete story. Address Chain Belt Company, 1664 West Bruce Street, Milwaukee 4, Wisconsin.



**CHAIN BELT COMPANY of MILWAUKEE**

**CONSTRUCTION MACHINERY**



PUMPS



PAVERS



PUMPCRETES



MOTO-MIXERS



MIXERS

# FROM COAST-TO-COAST

## C. I. T. FINANCES PURCHASES OF CONSTRUCTION EQUIPMENT

**CONTRACTORS:** You can acquire modern, labor-saving equipment without tying up your working capital. C.I.T. will finance your purchases of income-producing machinery **AT LOW COST.**

You make a reasonable initial payment; C.I.T. furnishes the funds to complete the transaction. Put your new equipment to work and let it help pay its own way out of increased earning capacity.

When you equip yourself with construction machinery, designed to perform specific work with utmost efficiency, you can handle more work per day, do a better job and earn larger profits.

C.I.T. financing is designed to conserve your working capital for pay rolls, supplies, taxes and other operating expenses. It enables you to own the proper equipment and spread the cost over extended periods of time.



Send for this booklet which explains how C.I.T. funds are obtained.

**Executive Offices: ONE PARK AVENUE, NEW YORK**

333 N. Michigan Avenue  
CHICAGO

223 Peachtree Street  
ATLANTA



660 Market Street  
SAN FRANCISCO

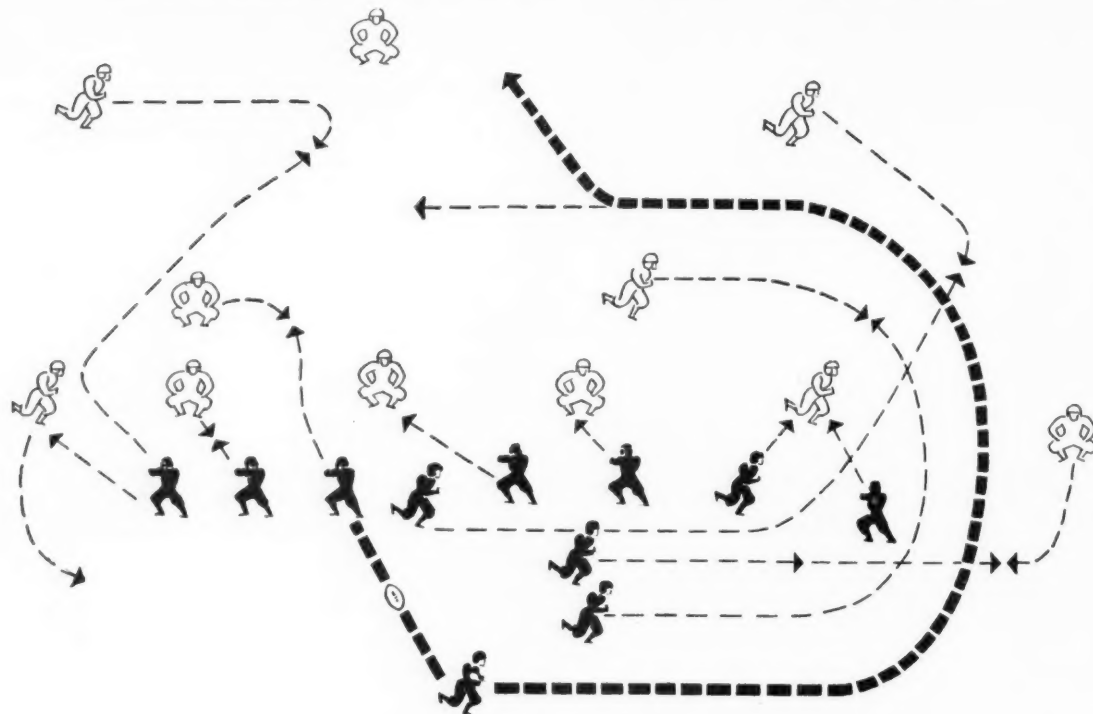
416 West 8th Street  
LOS ANGELES

In Canada: CANADIAN ACCEPTANCE CORPORATION Limited,  
Metropolitan Building, Toronto, Canada

Reprints of advertisements appearing in many leading construction publications

**AFFILIATED WITH COMMERCIAL INVESTMENT TRUST INCORPORATED**

# In a **ROCKMASTER** Blast ... In an Off-Tackle Play... Precise "TIMING" Pays Off



A winning football play depends on precision timing. The play can be shifted to suit circumstances. It "pays off" with touchdowns.

The precision split-second timing of the new Atlas Rockmaster Blasting System has "paid off" hundreds of users in terms of greatly increased fragmentation, saving dollars through stepped-up shovel efficiency and cutting down on secondary blasting. Furthermore, in many cases it has eliminated complaints about noise and vibration from blasting, even when more holes have been fired by the Rockmaster System. It has helped cut down "backbreak" in quarries and open-pit mining, and saved much of the expense of secondary shooting on the grizzly in underground operations.

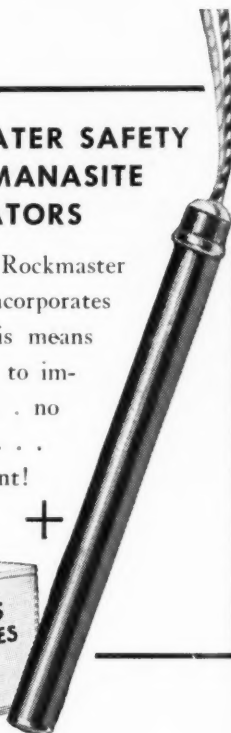
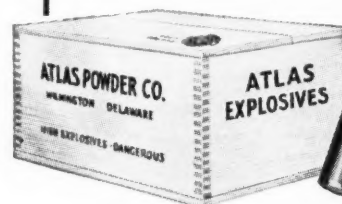
The Rockmaster Blasting System, like the football coach's favorite play, is shifted to suit circumstances. All factors in a Rockmaster blast—timing, loading, detonators, explosive and "know-how"—will adapt the system to your own particular job.

The wise football coach knows that the off-tackle play is not the answer to every situation. Likewise, Atlas does not claim that Rockmaster is the answer to every blasting problem. Yet Rockmaster may be able to achieve the same outstanding results for you as it has for many others. For an honest opinion of what Rockmaster can do for you, consult the Atlas Representative.

"ROCKMASTER"—Trade Mark  
Manasite: Reg. U. S. Pat. Off.

## PLUS THE GREATER SAFETY OF ATLAS MANASITE DETONATORS

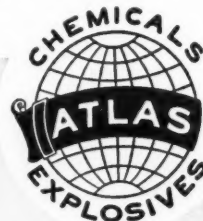
Remember, the Atlas Rockmaster Blasting System also incorporates Atlas Manasite. This means decreased sensitivity to impact and friction . . . no sacrifice of economy . . . less chance of accident!



# ATLAS

## EXPLOSIVES

"Everything for Blasting"

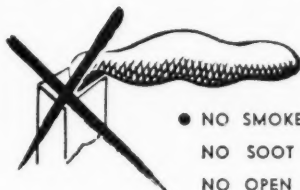


ATLAS POWDER COMPANY, Wilmington 99, Del. • Offices in principal cities • Cable Address—Atpowco

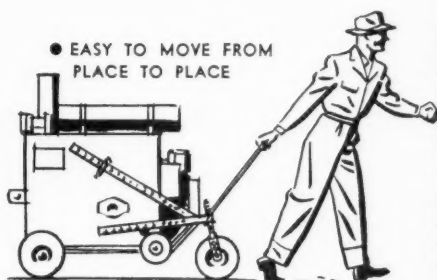
# KEEP GOING *this winter*



● ENOUGH HEAT  
FOR THREE ORDINARY  
5-ROOM HOUSES

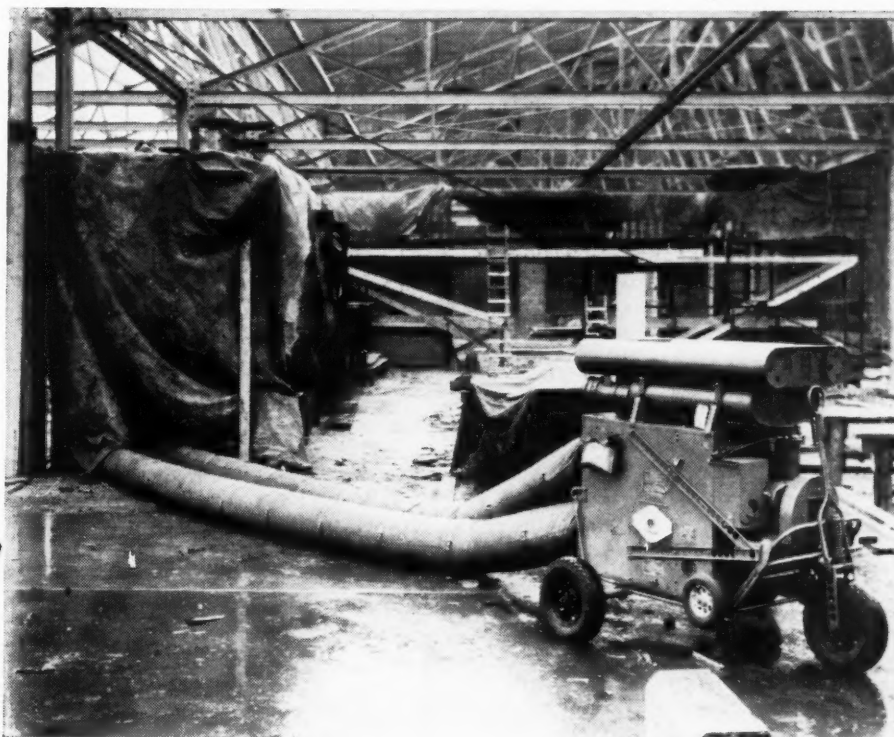


● NO SMOKE . . .  
NO SOOT . . .  
NO OPEN FIRE



● EASY TO MOVE FROM  
PLACE TO PLACE

with portable **HEAT!**



## The HERMAN NELSON Self-Powered Heater cuts "Winter Waiting Time"

### can be used for

**SPACE HEATING** of temporary buildings, storage sheds, repair shops, buildings under construction.

**PREHEATING** engines and all kinds of mechanical equipment.

**SPOT HEATING** of materials, workmen, machinery, storage tanks, tools.

**THAWING** frozen areas and machinery, wheels, gears, transmissions, caterpillars, etc.

**DRYING** and curing of materials, plaster, paint, mortar, concrete, etc.

**VENTILATING** and heating of manholes, tunnels, box cars, ship holds, confined areas of all kinds.

Quick heat . . . lots of it . . . is yours with this portable, self-contained heating unit. Volumes of heat . . . where you want it . . . fast! Burns gasoline by a new safe method . . . requires little attention. The HERMAN NELSON Self-Powered HEATER makes you practically independent of winter cold on any construction job. Jobs go ahead faster, men are able to work better — you can fill contracts on time with this versatile heat source. Easily handled by one man.



**THE HERMAN NELSON CORPORATION**  
for 40 years manufacturers of quality heating and ventilating products  
**MOLINE, ILLINOIS**

# LORAINS LEVEL MOUNTAIN TOPS for West Virginia Airport



9½ MILLION YARD  
KANAWHA, W. VA. PROJECT  
RUNS 40% ROCK

1¼ yd. Lorain-80 eats its way through a mountain top rock cut

**M**OUNTAINS—not meadows—serve as the locale for the new Kanawha, W. Va. Airport. Leveling the 400 acres required calls for 9½ million yards of excavation, 40% of it rock—involves clipping up to 130 feet off mountain tops and filling valleys ranging up to 210 feet in depth.

The contractor, Harrison Construction Co., Pittsburgh, Pa., having purchased a total of 24 Lorains, is using a full range of Thew-Lorain equipment, from the big 2-yard Lorain-82 "rock buster" shovel down to the agile, fast-stepping Moto-Crane. Over 4 million yards have been moved to date, with the Lorain shovels averaging 1200 yards per 8-hour shift.

Predominance of Lorains on many important contracts such as this gives proof to the fact that every unit in the Lorain line (½ yd. and up) is tops in its class. Catalogues on any or all of these shovels and cranes can be obtained from your local Thew-Lorain distributor.



Moto-Crane, wielding 4500 lb. skull cracker on over-size rock fragments, eliminates secondary blasting.

Reg. Trade Mark  
**thew-Lorain**

THE  
THEW SHOVEL CO.  
Lorain, Ohio

**CRANES • SHOVELS • DRAGLINES • MOTO-CRANES**

**A SLOW, POWERFUL  
PISTON - PUNCH  
GIVES YOU LOW-COST AIR POWER!**

Get the New

**SULLIVAN**

Series 80

**PORTABLE AIR COMPRESSORS**

**2-Stage  
Compression**

Automatic  
"ECONO-MISER"  
Load Control



**100 P.S.I.  
WORKING  
PRESSURE  
IN THE MOST  
COMPACT PORTABLE  
AIR PLANT YOU  
HAVE EVER SEEN**

*Consult a  
Joy Engineer*

*Write  
for bulletin  
today!*

**SULLIVAN**

PORTABLE AIR COMPRESSORS FROM 60 TO 630 CFM



**SULLIVAN DIVISION  
JOY MANUFACTURING COMPANY**

General Offices: Henry W. Oliver Bldg., Pittsburgh, Pennsylvania

# Their Performance Speaks Louder Than Words



*Above* — A Homelite Generator on the job furnishes plenty of power to operate time-saving electric saws.

*Below* — A Homelite Pump and Generator make the right combination for speeding dewatering jobs at night.



We'd much rather show you Homelite Portable Gasoline-Engine-Driven Pumps and Generators *in action* than just talk about them. Action speaks louder than words.

So why not let us give you a free demonstration... any place you want it. See how fast a Homelite pumps, how quickly it primes itself, how easily it handles heavy liquids and solids. See all the cost-cutting operations you can put to good use on day or night work with steady electric power furnished by a handy Homelite Generator.

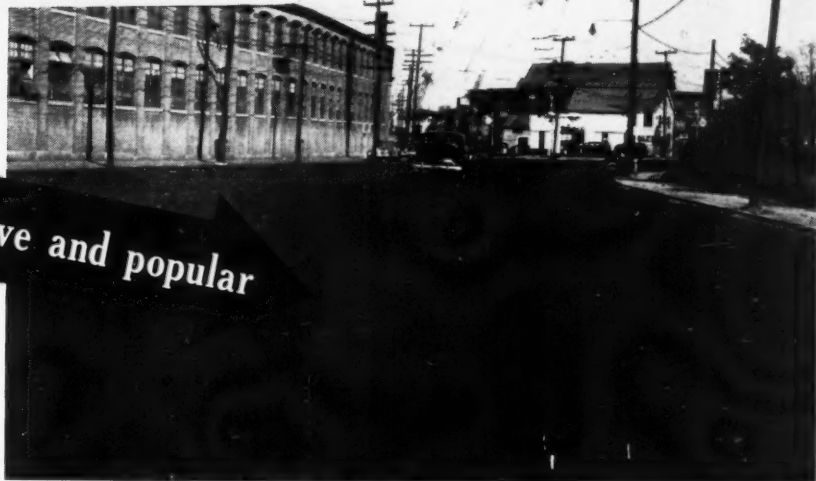
To get such a demonstration, free from all obligations, simply write. We'll have our nearest representative get in touch with you.

**Homelite**  
CORPORATION  
Port Chester, New York  
**Portable Pumps  
Generators and  
Blowers**  
GASOLINE-ENGINE-DRIVEN



**Your worn, unsightly pavement**

Before and after Central Avenue, Pawtucket, R. I., was resurfaced with Texaco Sheet Asphalt by the Rhode Island highway department. Contractor: Campanella and Cardi, Providence.



**becomes smooth, attractive and popular**

## when resurfaced with resilient, heavy-duty Texaco Sheet Asphalt

One legacy left us by the war is a staggering mileage of worn streets and highways. Your quota of these rough, unsightly pavements, however, does not have to be replaced by expensive new construction. As demonstrated once again by the Rhode Island highway department, these pavements usually provide excellent bases for resilient, heavy-duty Texaco Asphalt surfaces of the Sheet Asphalt or Asphaltic Concrete type.

On the important Pawtucket thoroughfare shown above, Rhode Island has constructed a Texaco Sheet Asphalt pavement, consisting of

a 1½-inch binder course and 1-inch wearing surface.

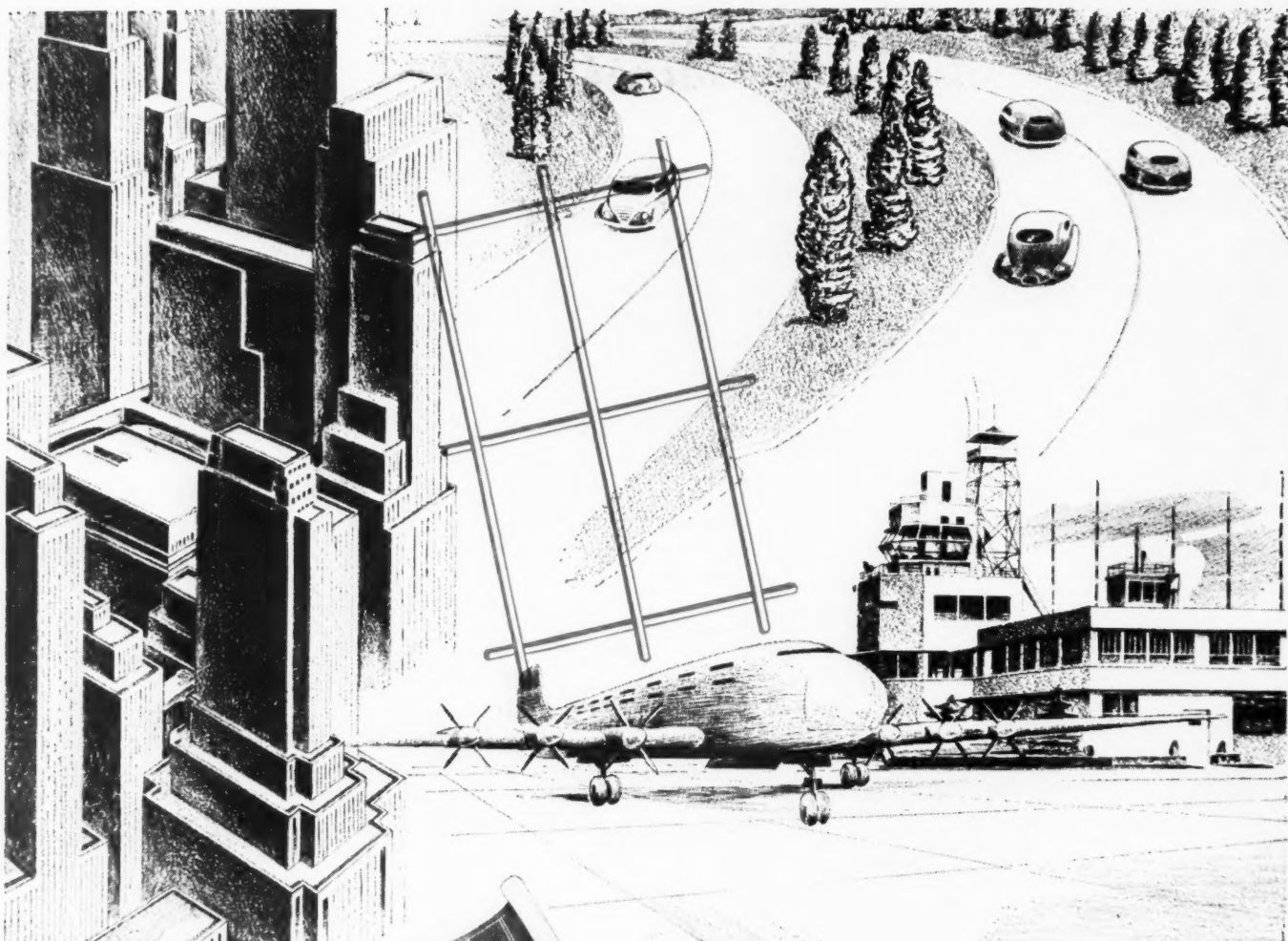
For years, engineers throughout the country have been salvaging worn pavements of every type with Texaco, frequently obtaining an additional quarter-century of satisfactory service as a result.

To help you reach a sound, economical solution to your paving problem, Texaco engineers who are Asphalt specialists are at your service. Write our nearest office if you would like to discuss your problem with one of them.

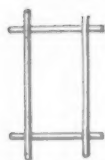
THE TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17  
 Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Philadelphia 2 Richmond 19



# TEXACO ASPHALT



*with this Proven Fabric*



At our busiest airports, on our best paved streets and highways, in our tallest buildings, you can see how concrete construction contributes to modern living.

Welded Wire Fabric, the most vital factor in concrete construction, is invisible in the concrete slab, but imparts the strength and stamina to control cracks that may form in concrete.

American Welded Wire Fabric is the most widely used prefabricated concrete reinforcement. Its closely spaced steel wires are electrically welded into a prefabricated mat which fortifies against major stresses and strains.

Many additional uses of concrete will be made possible by the ability of this versatile reinforcement to meet new requirements. So when you are planning for tomorrow, it will pay you to know *all* of the ways you can use American Welded Wire Fabric. For wherever it is practical, it is also economical.

**LISTEN TO . . .** the "Hour of Mystery" presented by United States Steel on the radio every Sunday evening. Consult your newspaper for time and station.



**American Steel & Wire Company**

*Cleveland, Chicago and New York*

*Columbia Steel Company, San Francisco,  
Pacific Coast Distributors*

*Tennessee Coal, Iron & Railroad Company, Birmingham  
Southern Distributors*

*United States Steel Export Company, New York*

**UNITED STATES STEEL**

# CHECK THESE PROFIT - POINTS *For Greater* TRACTOR-LOADER PERFORMANCE



**A**  
ELIMINATES  
GEARS AND  
CLUTCHES

**B**  
LONG, LONG  
TRACK  
ASSEMBLY

**C**  
CONVENIENT  
HYDRAULIC  
CONTROL

**D**  
NEW, FASTER  
DIGGING  
BUCKET

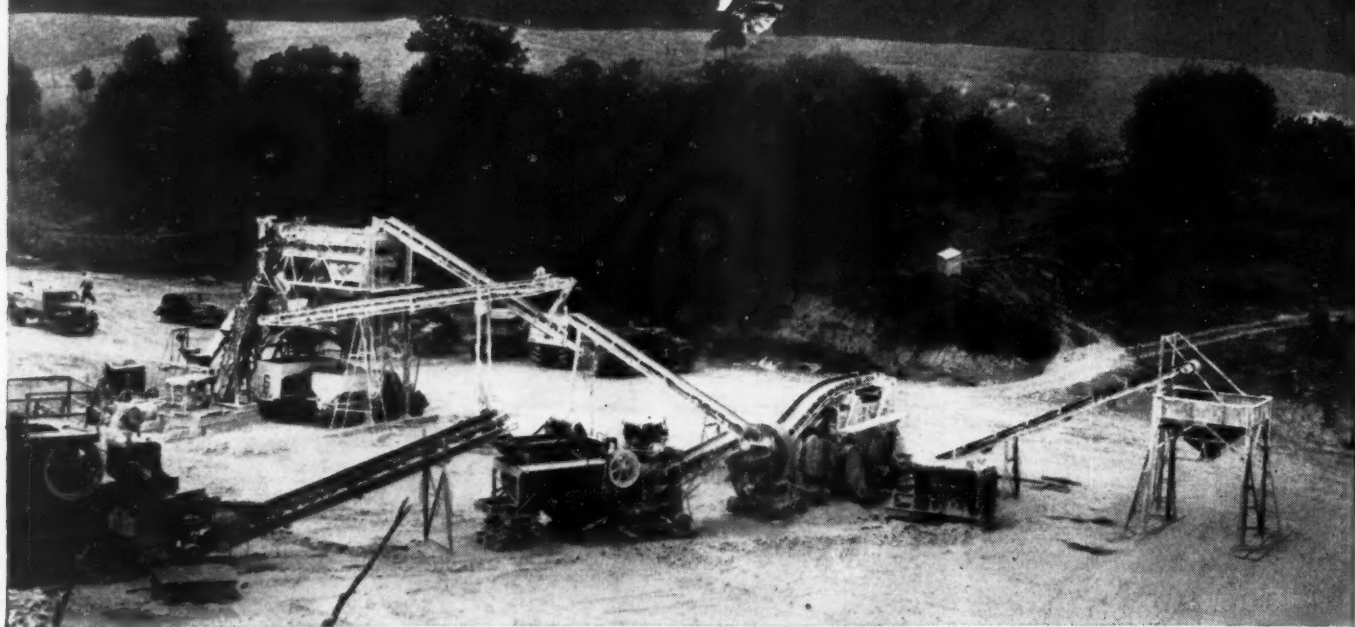
HERE'S a tractor-loader with greater digging and loading performance . . . with exclusive, simple, fast hydraulic control that enables you to hit new highs in production in most any materials. Its newly designed bucket makes it a capable digging unit — backed by the dependable power and traction of the "Caterpillar" Diesel D4 Tractor. Retaining the proved features of hundreds of Athey MobiLoaders in the field — adding new, exclusive features to increase production and ease of operation — the new Athey ML 4 MobiLoader is today's buy in the tractor-loader field! Ask your Athey "Caterpillar" Dealer about an early delivery of the new MobiLoader or write direct to

ATHEY PRODUCTS CORPORATION  
Chicago 38, Illinois



## New Athey ML 4 MobiLoader

# Here's the plant...



... that fits all aggregate  
production requirements —  
... any quantity ... any specification

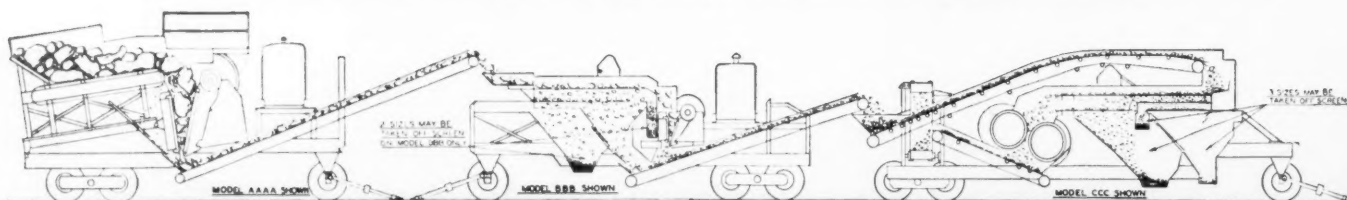
IT'S A Cedarapids Unitized Plant that will crush, size and wash rock or gravel to fit any specification from riprap stone to agstone. The complete set-up consists of a primary crusher unit, a secondary crusher unit, a roll crusher unit and a washing and sizing unit. Each unit is complete in itself and can be used alone or in any one of a dozen different combinations depending upon the pit or quarry and the finished product desired. A wide range of sizes of each unit makes it possible to have a plant

with almost any desired capacity. Choice of roll crusher, cone crusher, twin jaw crusher or hammermill provides still more flexibility.

You can start with the secondary jaw and roll units to produce crushed gravel and add the other units as your demands increase. Get the complete story from your nearest Cedarapids distributor and study the flow diagram below.

When buying a crushing plant — buy the best — buy Cedarapids.

**Iowa Manufacturing Company, Cedar Rapids, Iowa, U. S. A.**



## THE IOWA LINE of Material Handling Equipment Includes:

ROCK AND GRAVEL CRUSHERS  
BELT CONVEYORS—STEEL BINS  
BUCKET ELEVATORS  
VIBRATOR AND REVOLVING SCREENS

STRAIGHT LINE ROCK AND GRAVEL PLANTS  
FEEDERS—TRAPS  
PORTABLE POWER CONVEYORS  
KUBIT IMPACT BREAKERS

TRAVELING (ROAD MIX) PLANTS  
DRAG SCRAPER TANKS  
WASHING PLANTS  
TRACTOR-CRUSHER PLANTS  
STEEL TRUCKS AND TRAILERS

PORTABLE STONE PLANTS  
PORTABLE GRAVEL PLANTS  
REDUCTION CRUSHERS  
BATCH TYPE ASPHALT PLANTS

# Cedarapids

Built by  
IOWA

# Hot Rivets



## can't ignite **FIRE CHIEF Canvas**

No, not even a carelessly-dropped, red-hot rivet can ignite patented FIRE CHIEF Finished Canvas. It will char where the rivet touches, but the char will be well within government specifications. No fire will result.

That's why FIRE CHIEF Finished Hooperwood Duck is so popular for construction work. It is the canvas that not only permanently resists fire, but water, wear, weather and mildew as well.

Approved by the Underwriters Laboratories and the Associated Factory Mutual Fire Insurance Companies, FIRE CHIEF also meets all Government requirements for fire, water, weather, wear and mildew-resistant canvas.

FIRE CHIEF Compound is also now available for application to new or used untreated canvas.

Specify FIRE CHIEF for protection. Profit from its economy.

**WM. E. HOOPER & SONS CO.**

New York    PHILADELPHIA    Chicago

Mills: WOODBERRY, BALTIMORE, MD.

*Manufacturers of Cotton Duck, Filter Twills and Chain Cloth, Oil Press Cloth, Kushon Kloth, Cider Press Cloth, Laundry Padding, Rope and Sash Cord, Heavy Narrow Fabrics and Paper Mill Dryer Felts*

*Fire-Chief Finished*

U. S. Patents No. 2,044,176, No. 2,299,612 and other patents

**HOOPERWOOD COTTON DUCK**

# BOSS OF THE



**T**HERE'S a new champion among bulldozers today. Designed, built and put through the stiffest of job-tests by Caterpillar Tractor Co., the new "Caterpillar" Bulldozer entered the earthmoving field a year ago. Its success has been immediate and unqualified. Old hands in the business who have used them all say without hesitation it's writing new history in fast, economical earthmoving.

Among the outstanding advantages of the "Caterpillar" Bulldozer are these:

1. The scientific curve of the blade *rolls* the earth ahead instead of shoving it—producing greater capacity and lower yardage costs.
2. With the famous "Caterpillar" Diesel Tractor, this

# BULLDOZERS



'dozer is a matched, perfectly balanced work unit. Tractor and 'dozer are both built by the same experienced manufacturer—both sold and serviced by the same well-equipped dealer.

**3.** It can be mounted and demounted quickly, with none of the inconvenience of an overhead frame.

**4.** Specially treated, extra-hard steel gives the blade edge long, durable life.

**5.** Cable controls are fast, sure-acting, easy to operate,

and cables and sheaves are protected from dirt-clogging.

"Caterpillar" Bulldozers with straight or angling blade are available for the three larger sizes of "Caterpillar" Diesel Tractors and they'll make a lot of dirt fly in the great earthmoving days that are ahead.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

## CATERPILLAR DIESEL

ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT



Gorman-Rupp self-priming, centrifugal pumps are made in any size or capacity up to 125,000 gallons per hour. The pumps pictured here are: the "Midget" (model 2101) weighing only 60 pounds will pump 3000 GPH at ordinary heads and the model 1602 (90M) with a capacity of 90,000 GPH at ordinary heads.

## THE QUALITIES OF STAMINA AND ENDURANCE

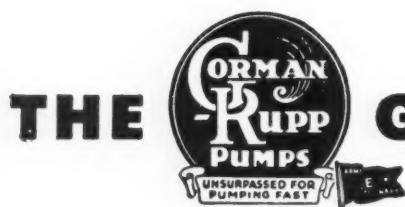
necessary for a winning performance are designed and built into all Gorman-Rupp pumps.

A thoroughbred is never a quitter. Gorman-Rupp self-priming, centrifugal pumps will handle anything that comes their way for days, weeks, months at a time, if you want them to -- and they'll stand up and stay on the job.

Gorman-Rupp pumps are streamlined inside where streamlining counts and are by far the simplest pump made. They will handle any muck, weeds or gravel that will pass the intake strainer. No by-pass tubes, no sharp corners, no tricky valves -- no place for refuse to stick or lodge.

Thirty to sixty days without a stop is common with Gorman-Rupp pumps. You can handle more water per hour for size of pump and with less fuel than any other pump.

We will be glad to place one in your hands and let you be the judge.



**THE**

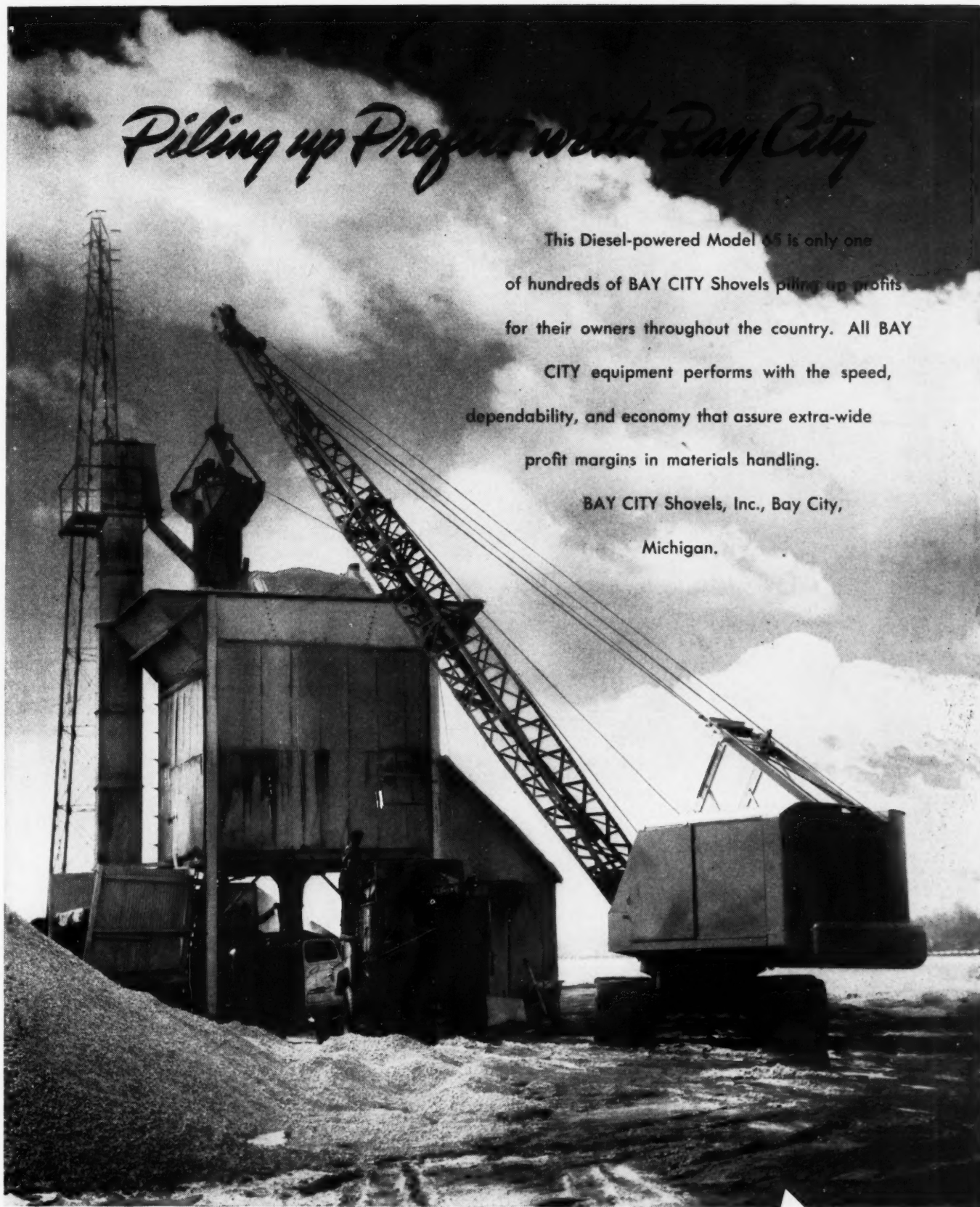
**GORMAN-RUPP COMPANY**

308 BOWMAN STREET • MANSFIELD, OHIO

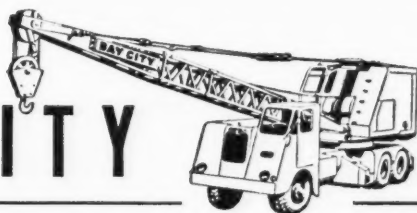
# *Piling up Profits with Bay City*

This Diesel-powered Model 45 is only one of hundreds of BAY CITY Shovels piling up profits for their owners throughout the country. All BAY CITY equipment performs with the speed, dependability, and economy that assure extra-wide profit margins in materials handling.

BAY CITY Shovels, Inc., Bay City,  
Michigan.



## BAY CITY



SHOVELS • DRAGLINES  
CRANES • HOES • CLAMSHELLS

SEE YOUR NEAREST DEALER for Bay City excavating and material handling equipment in sizes from  $\frac{3}{8}$  to  $1\frac{1}{4}$  yards having crane rating up to 20 tons. Both crawler and pneumatic tire mounting.

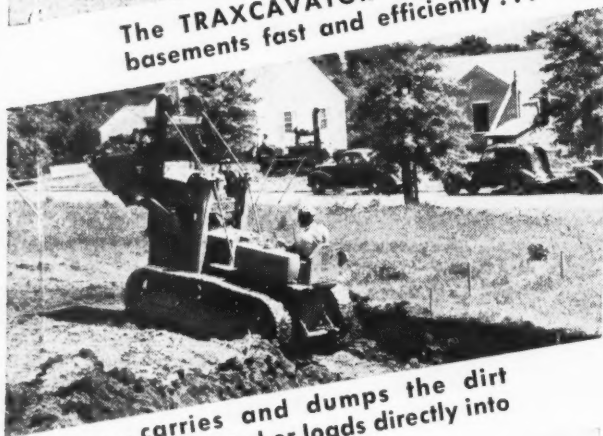
**DIGGING BASEMENTS?  
GRADING?**

# TRAXCAVATE!

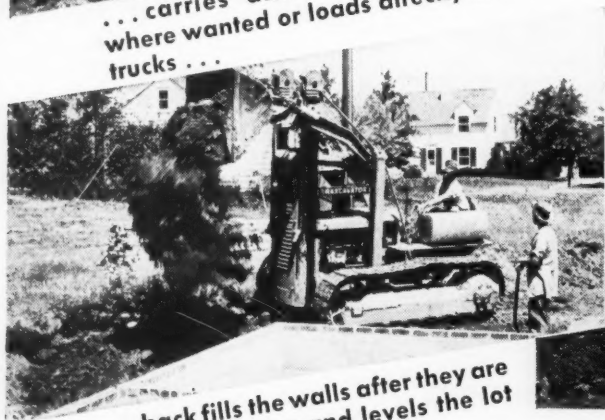
**IT'S THE PROFITABLE WAY  
TO MOVE THE EARTH**



The TRAXCAVATOR digs house basements fast and efficiently ...



... carries and dumps the dirt where wanted or loads directly into trucks ...



... back fills the walls after they are laid, and grades and levels the lot

TRAXCAVATORS are profitable equipment to have on your side. They pay off in more work on more jobs, at lower cost. Their versatility is practically unlimited when there's earth to be moved or material handled. Whether you're doing excavating and grading work for single houses or large housing projects, TRAXCAVATORS' performance is an honest-to-goodness time and labor-saver. Digging, loading, grading, carrying, leveling, backfilling are only a few of the tasks you can assign to these rugged, multi-purpose machines.

TRAXCAVATORS are built in various sizes for every job and purpose — with bucket capacities from  $\frac{1}{2}$  to  $2\frac{1}{2}$  cubic yards. Each is a balanced unit with the sturdy "Caterpillar" track-type tractor by which it is powered. Available interchangeable attachments increase the work-potential of these profit-building machines. See your TRACKSON-"Caterpillar" dealer today or write for informative literature to TRACKSON COMPANY, Dept. CM96, Milwaukee 1, Wisconsin.



Big T7 TRAXCAVATOR grading and landscaping residential grounds in a Minneapolis suburb



**DIGS  
GRADES**

# TRAXCAVATOR

REG. U. S. PAT. OFF.

**THE ORIGINAL TRACTOR EXCAVATOR**



**LOADS**

**CARRIES**

# TRACTION + STAMINA = Firestone

ROCK GRIP EXCAVATOR

*The Toughest Traction Tire  
Ever Built*



#### EARTH MOVER

Designed to give maximum flotation to free-rolling wheels on drawn earthmoving scrapers, wagons and buggies.

#### GROUND GRIP

Delivers greatest possible traction to drive wheels of earthmoving equipment operating in loose fill or soft ground.

WHEN the really tough jobs send "pretty good" tires to the graveyard there is one tire, the Firestone Rock Grip Excavator, that stands the gaff and is always ready for more. It's the toughest traction tire ever built for construction work, strip mining, quarrying and logging.

Its cord body is of the heaviest, strongest rayon. Four extra tread plies are built into its Gum-Dipped cord body to cushion and absorb impact blows. Tread and sidewalls of the tire are made of extra tough Vitamic rubber especially compounded to resist rutwear, cutting and snagging. Because the massive chevron tread bars provide a balanced, stable design, the Rock Grip cannot side-slip on crowned roads or fills, endangering personnel or equipment.

To get the maximum in traction and stamina put the Firestone Rock Grip Excavator on your equipment. It will take more punishment and deliver greater traction for more hours of operation than any tire ever built.

# Firestone

## OFF-THE-HIGHWAY TIRES

Copyright, 1946, The Firestone Tire & Rubber Co.



"Gulf Quality Products and  
*prompt delivery  
service*

help us get better all-round  
job efficiency"

says Supt. John L. Dugan

\*Fred Berlanti and Son, Inc., of Harrison, New York, has just completed an important project on U. S. Route 22 near Phillipsburg, New Jersey. This \$700,000 job included approximately 100,000 cu. yds. of rock and earth excavation, 55,000 sq. yds. of 10" concrete pavement and 2 bridges.

"**P**ROPER lubrication with Gulf quality oils and greases helps keep all of our equipment in good condition—and Gulf's prompt delivery of lubricants and fuels helps us avoid delays," says Superintendent John L. Dugan of Fred Berlanti and Son, Inc.\* "We're satisfied that we get more work-hours from every unit of equipment and better all-round job efficiency by dealing with Gulf."

For some years now, there has been little allowance in most contracts for breakdowns and delays caused by mechanical troubles. That's why many leading contractors have formed the habit of using Gulf quality lubricants and fuels as basic profit insurance. They know that Gulf products help effectively to keep equipment on the job—and operating at top efficiency.

Write, wire, or phone your nearest Gulf office today and arrange to use Gulf higher quality lubricants and fuels on your next job. They are quickly available to you through 1200 warehouses in 30 states from Maine to New Mexico.

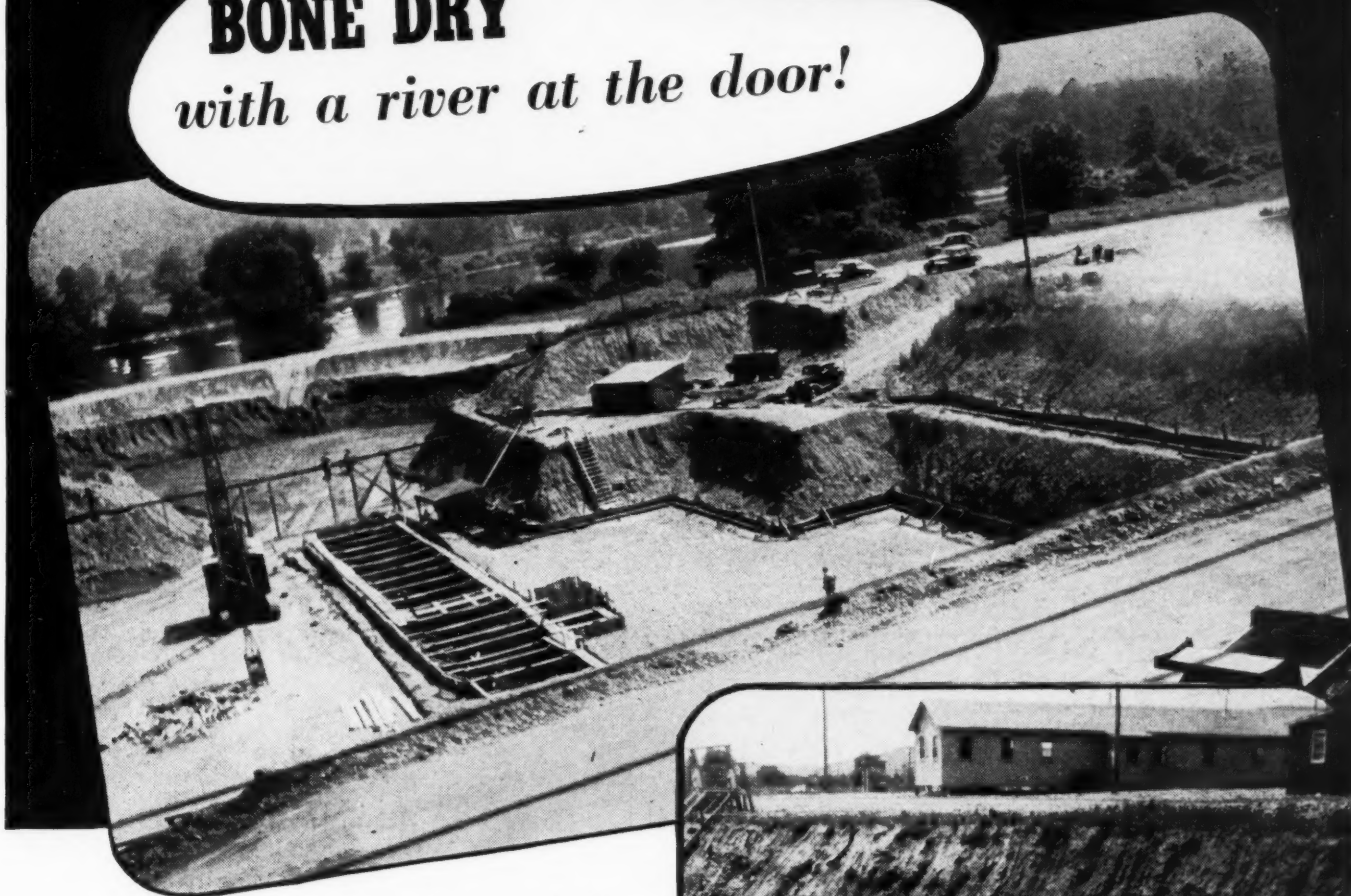
**Gulf Oil Corporation • Gulf Refining Company**

Division Sales Offices:

Boston • New York • Philadelphia • Pittsburgh • Atlanta  
New Orleans • Houston • Louisville • Toledo



**BONE DRY**  
*with a river at the door!*



Note the sloped banks—  
and the gravelly soil conditions.

A one hundred per cent MORETRENCH  
WELLPOINT SYSTEM is keeping twenty  
feet of water under control on this power  
plant foundation.

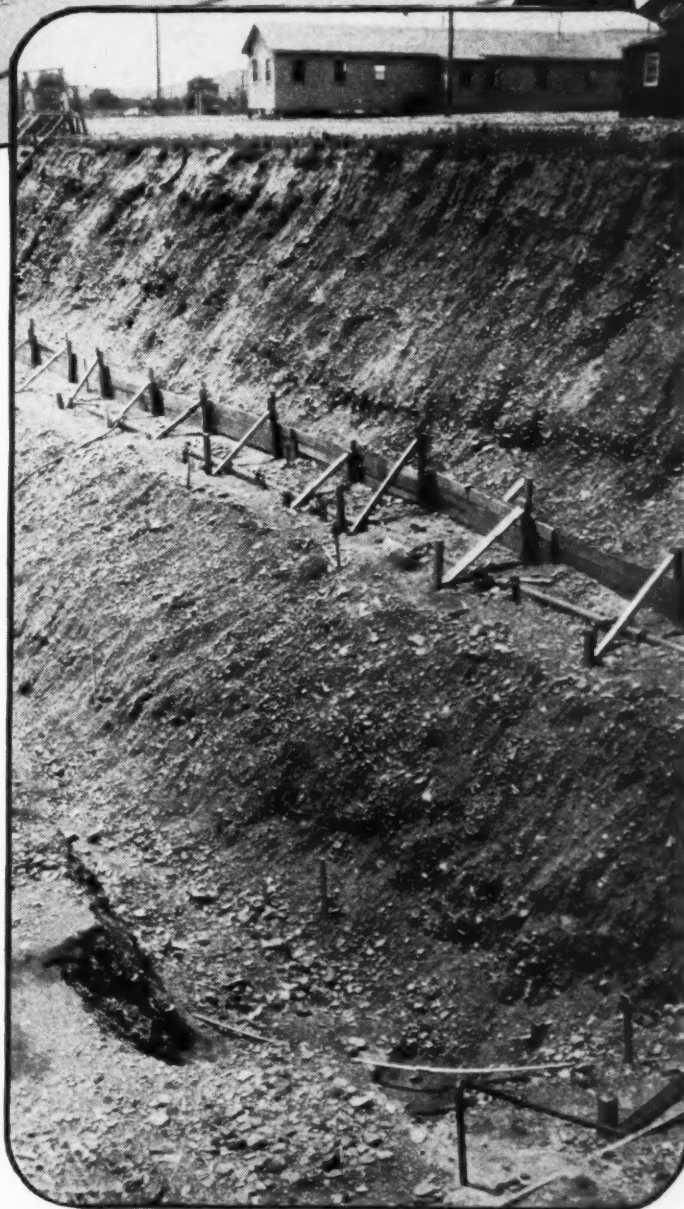
It doesn't cost much to make a wet job dry,  
and — it's worth it! Send for an estimate on  
yours.

*Catalog on request*

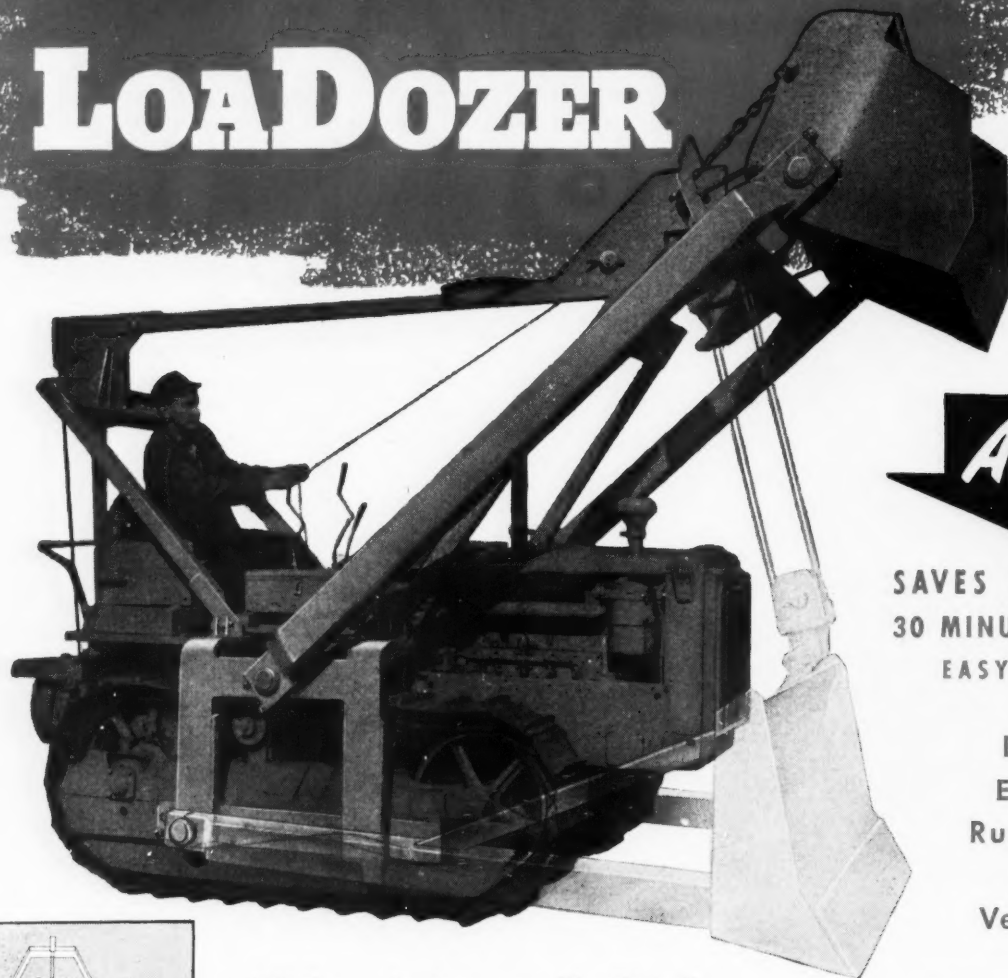
## **MORETRENCH CORPORATION**

90 WEST ST., NEW YORK 6  
ROCKAWAY, N. J.

CHICAGO 23, ILL.    HOUSTON 8, TEX.    TAMPA 6, FLA.  
3037 So. Christiana Ave    315 W. 25th St.    2424 Chicago Ave.



# NOW-THE SOUTHWEST LOADOZER

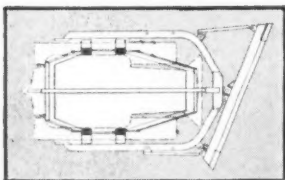
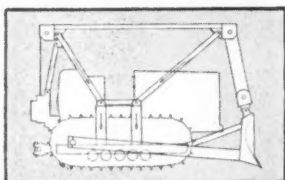
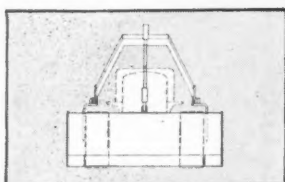


*All this*

SAVES ONE TRACTOR  
30 MINUTE CHANGE-OVER  
EASY OPERATION

Balance  
Economy  
Ruggedness  
Speed  
Versatility

ANOTHER EXAMPLE  
OF *Southwest's* LEADERSHIP



"Over Center Track Mounted"  
design gives perfect balance

All these features are "built-in" qualities of the new SOUTHWEST "LOADOZER"—Extra values that mean greater efficiency and economy in Loader and Bulldozer operations. Remember—you SAVE ONE TRACTOR—it takes only 30 MINUTES TO CHANGE OVER this combination Loader-Bulldozer unit.

- Built for all four makes of track type tractors.
- See your equipment dealer about the complete line of SOUTHWEST CONSTRUCTION EQUIPMENT.
- For complete specifications on this Loader-Bulldozer combination unit—WRITE FOR BULLETIN CM-11.

CONSTRUCTION MACHINERY DIVISION

## Southwest Welding & Manufacturing Co.

ALHAMBRA, CALIFORNIA



**AIR  
PLUS**

**JAEGER COMPRESSOR**



**DON'T BUY AN OBSOLETE COMPRESSOR WHEN  
YOU CAN GET A JAEGER AIR-PLUS**

There's at least 5 YEARS' DIFFERENCE between ordinary air compressors and the modern Jaeger "AIR PLUS" . . . Engineered as complete units to micro-precision standards unknown before the war, and powered with big Continental, Caterpillar and International engines of the latest type, these efficient machines deliver cooler, drier air with less fuel consumption than any compressor you have ever owned.

In design they are extremely simple and accessible. In operation they develop full efficiency at 20% to 30% slower piston speed than others, eliminating all usual vibration and increasing the life of both engine and compressor. Giant, air-actuated valves, "ultra-lapped" to perfect seating closure, insure free flow and positive delivery of all the air and make frequent valve grinding or replacement a thing of the past.

"AIR PLUS" Compressors are sold and ably serviced in 120 cities. Sizes 60 to 500 ft. Ask your Jaeger distributor or write us for Catalog JC-5.

**THE JAEGER MACHINE COMPANY, Columbus 16, Ohio**

REGIONAL  
OFFICES:

8 E. 48th St.  
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**You Get MORE FOR  
YOUR MONEY in a  
MODERN COMPRESSOR**

- Air-cooled, 2-stage, vertical compressor—built in a balanced "W", full force-feed lubricated — 3 point suspension — interchangeable precision parts.
- 100% efficient intercooling, automatic drainage.
- Massive main frame with recessed fuel tank, 30% to 50% larger air receivers, bigger tool boxes, lifetime clutches, sectional radiators and intercoolers, electric starter, grouped controls, Timken bearing wheels, "Auto-Steer" axle, etc. all standard.

**JAEGER**

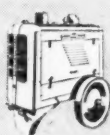
*Engineered* **EQUIPMENT**



"FLEET-FOOT"  
Loaders



"SPEEDLINE"  
Concrete Mixers



"SURE PRIME"  
Contractors Pumps

JAEGER-LAKEWOOD SPREADERS, FINISHERS AND BITUMINOUS PAVERS, FORMS, FORM TAMPERS—"DUAL-MIX" TRUCK MIXERS, AGITATORS—JAEGER HOISTING ENGINES, TOWERS

*Fast*  
on the JOB,  
*Easy*  
on the OPERATOR!

# MICHIGAN

MOBILE SHOVEL-CRANE

## FULLY CONVERTIBLE

$\frac{3}{8}$  YD. and  $\frac{1}{2}$  YD. SHOVELS  
6 TO 12 TON CRANES

FINGERTIP  
AIR CONTROLS  
ONE-MAN  
OPERATION  
TRUCK MOBILITY

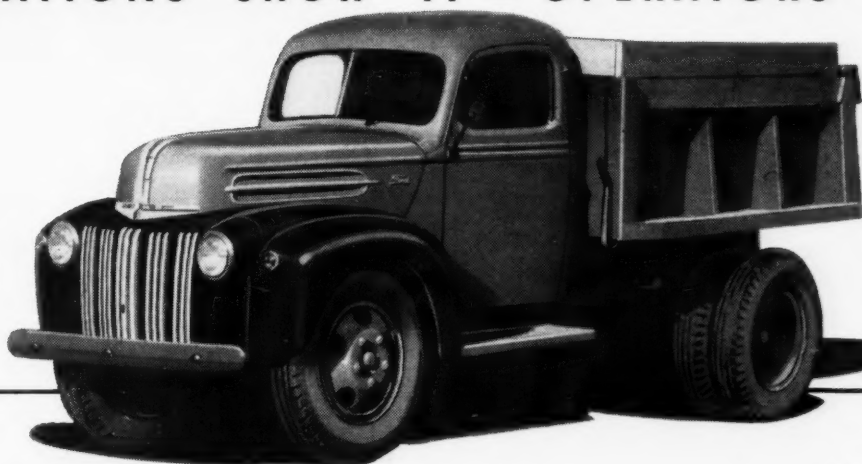


You can count on your operator maintaining high output rates with a MICHIGAN. It's fast-moving—both on the road and on the job. It's easy to handle, it's economical to operate. That's why it ranks so high in the estimation of operators and owners alike. With operators because its air controlled clutches respond instantaneously and smoothly to the touch of a finger. With owners because it gets every job done sooner, at minimum cost.

Complete information and specifications on MICHIGAN Mobile SHOVEL-CRANES is available on request. Ask for Bulletin CM-96.

**MICHIGAN**  
POWER SHOVEL COMPANY  
BENTON HARBOR MICHIGAN

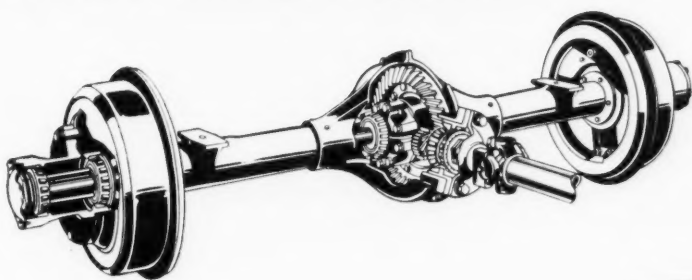
REGISTRATIONS SHOW IT — OPERATORS KNOW IT!



Dump Body by  
MARION METAL  
PRODUCTS CO.,  
Marion, O.

# "FORD TRUCKS LAST LONGER!"

**One big reason—  
FORD AXLES STAND UP!**



Ford Truck axle shafts carry no weight load, because *ALL* Ford Trucks have  $\frac{3}{4}$ -floating or full-floating axles. All weight stresses are carried on the axle housing—none on the shafts—minimizing shaft breakage. Driving pinion is straddle-mounted on 3 large roller bearings, maintaining positive mesh with ring gear—no destructive springing away under stress. Differentials have 4 sturdy pinions, even in light duty chassis, spreading the load and strain.



*ONLY in a Ford Truck* will you find all these long-life features: your choice of two great truck engines, the 100-H.P. V-8 or 90-H.P. Six—triple-life Silvaloy V-8 rod bearings—Flightlight aluminum alloy, 4-ring pistons—efficient air- and oil-filtering—full pressure lubrication—heavy channel section frames, *doubled* between springs in heavy duty models—semi-centrifugal clutch—big hydraulic brakes, with non-warping, score-resistant cast drum faces for maxi-

mum life. More than 50 such long-life features contribute to Ford Truck endurance . . . and that endurance is proved by the fact that 7 out of 11 of all Ford Trucks built since 1928 are still in use. See your Ford Dealer!

## **FORD TRUCKS**

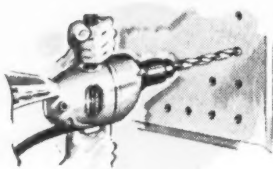
**MORE FORD TRUCKS IN USE TODAY THAN ANY OTHER MAKE**

**Handling Different  
Drilling Jobs Every Day?**

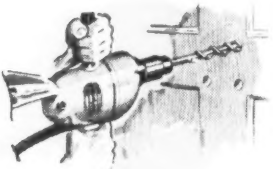
# HERE'S THE TOOL FOR YOU!



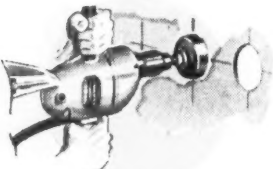
## It Drives:



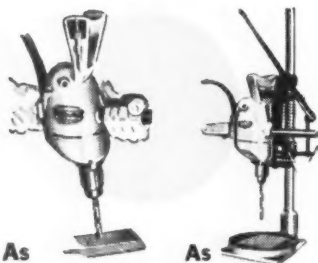
**Twist Drills**



**Wood Augers**



**Hole Saws**



**As  
Portable Drill      As  
Drill Press**

**V**ERSATILE Black & Decker 1/2" STANDARD Electric Drills make short work of the 100-and-1 drilling, boring and hole-sawing jobs that turn up in building and construction work every day! They're fast, rugged, full-powered, flexible, easy to handle. They drive twist drills up to 1/2" in steel, wood augers up to 1" in hardwood, Hole Saws up to 3 1/2" diameter for cutting clean, round holes in any material a hacksaw will cut.

Moreover, Black & Decker 1/2" STANDARD Drills are equally productive when used as powerful drill presses! Mounted in a Black & Decker Drill Stand, they have 6-to-1 leverage to put on the pressure when needed . . . a smooth, positive feed for more precise work . . . one-hand operation that makes it easier to guide the workpiece.

No matter what the job . . . or how tough it may be . . . you can count on these Drills to get work done faster, at lower cost to you! Due to the heavy demand, your Black & Decker Distributor may not always have them in stock. But check him today for complete information. And for your free copy of our complete catalog, write to: The Black & Decker Mfg. Co., 659 Pennsylvania Ave., Towson 4, Md.

LEADING DISTRIBUTORS  EVERYWHERE SELL

# Black & Decker

PORTABLE ELECTRIC TOOLS



A fleet of TERRA-COBRAS widening Ignacio-Santa Rosa Highway north of San Francisco for Harms Bros., contractors.

Full loads of 18 cu. yds. on this 1800 ft. round-trip haul, trip after trip, are the rule rather than the exception, with Wooldridge Terra-Cobras. Steep climbs to the top of the cut—fast downhill loading—fast break-away and rapid acceleration to top speed contribute to maximum yardage efficiency. Power and speed combined with positive steering control make possible the handling of tons of earth in less time at a lower cost—and with greater safety to operators and equipment. Easier all-around handling of the Terra-Cobra results in less operator fatigue and higher hourly averages. Why not plan to key your earth-moving operations to Wooldridge Terra-Cobras? Get full details, today.

**WOOLDRIDGE**  
MANUFACTURING COMPANY  
SUNNYVALE, CALIFORNIA · U.S.A.

**TERRA COBRA**  
Hi-Speed Self-Propelled EARTHMOVERS

## WOOLDRIDGE

### EARTHMOVING EQUIPMENT

Includes



#### ★ SCRAPERS

Tractor-drawn for handling heaping yardages from 6 to 28 cu. yards.



#### ★ POWER CONTROL UNITS

Single and multiple drum with universal or roller fairleads.



#### ★ BULLDOZERS

Tough and rugged design for standard makes of tractors.



#### ★ TRAILBUILDERS

Adjustable angle-blades for standard tractor mounting.



#### ★ RIPPERS

Available in light, medium and heavy duty models with two sizes to each model.

**DISTRIBUTOR SALES & SERVICE FACILITIES IN ALL PRINCIPAL AREAS & FOREIGN TERRITORIES**

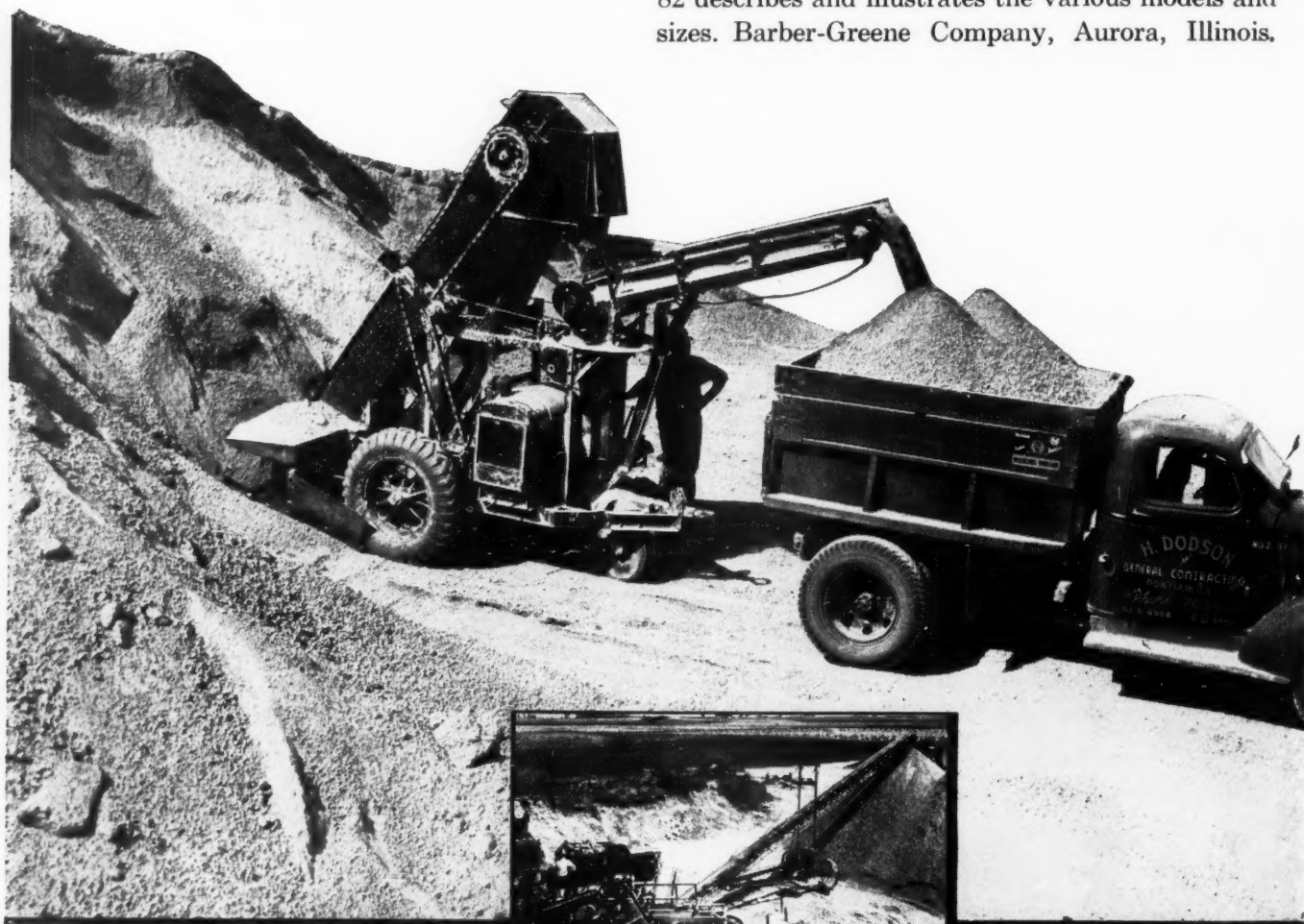
# How **BG Bucket Loaders**

## Save Truck Time

• Saving truck loading time is the equivalent of adding trucks to your fleet. And, Barber-Greene Bucket Loaders *are* saving truck time every day through their high capacity and efficiency in loading from stock piles. They're specially designed for this job—a job no other method approaches from the standpoint of saving time.

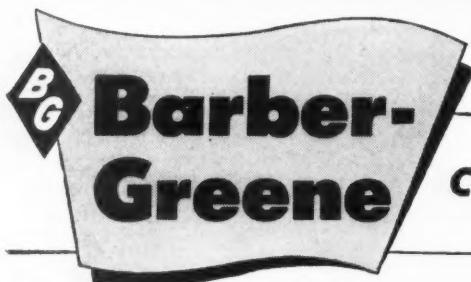
In addition, Barber-Greene Bucket Loaders are easily maneuvered around the yard or pit, and, where conditions warrant, can be equipped with a special high travel speed for moving from stock pile to stock pile.

The Barber-Greene Bucket Loader Catalog No. 82 describes and illustrates the various models and sizes. Barber-Greene Company, Aurora, Illinois.

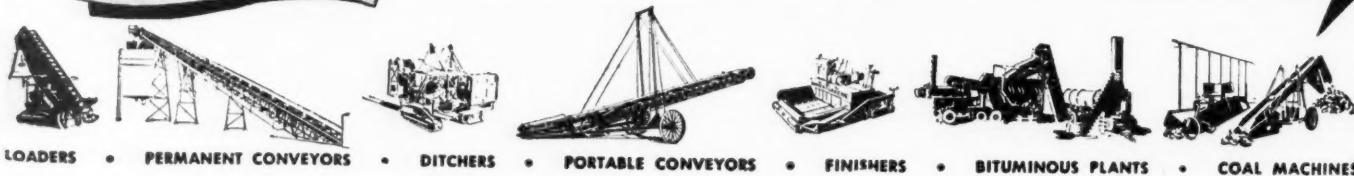


46-5

This B-G Portable Belt Conveyor provides a flexible storage system for bulk materials . . . builds long parallel piles or large radial stock piles.



**CONSTANT FLOW EQUIPMENT**



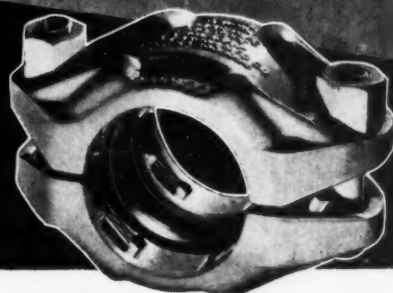
LOADERS • PERMANENT CONVEYORS • DITCHERS • PORTABLE CONVEYORS • FINISHERS • BITUMINOUS PLANTS • COAL MACHINES

***This LEAKPROOF Connection  
Is FLEXIBLE***

**COUPLES  
PLAIN END  
PIPE**

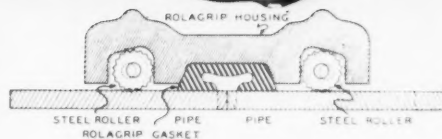
**SIMPLE  
SPEEDY  
SECURE**

# ROLAGRIP PIPE COUPLINGS



The unusual flexibility of Rolagrip Pipe Couplings in accommodating considerable angular misalignment and vibration, in addition to the usual contraction and expansion, has been a principal reason for their preference on difficult pipe line projects carrying either concentrates, water or air.

Permanent or temporary — surface or buried — ROLAGRIPS provide the ultimate in savings of time and labor on installation and maintenance. A ROLAGRIP Pipe Coupling is made up of only a gasket, 2 housing halves and 2 bolts which hold them together. No special tools or skills are needed to make a leakproof connection. The gasket is simply slid over the joint and the halves of the housing bolted together over it.



This is the proved principle of ROLAGRIP'S controlled flexibility. As the pipe tends to separate or deflect angularly, the toothed steel rollers, through the design of their recesses, grip tighter and tighter as they roll by embedding into the surface of the pipe and coupling housing.

*Specify ROLAGRIP—The Coupling for Plain End Pipe*



**GUSTIN-BACON MANUFACTURING CO.**

**KANSAS CITY 7, MISSOURI**

Established 1898

**New York Philadelphia Chicago Tulsa Houston Fort Worth San Francisco**



## *Red Lead* **NEUTRALIZES ACIDS** *that Speed Up Rusting*

Every maintenance engineer knows that Red Lead has long been the outstanding protective paint for metal.

But did you know that one of the important reasons is the ability of Red Lead to counteract the acid conditions which are recognized as accelerators of rust?

Structural steel is usually exposed to acid environments. This is so because acid-forming compounds are produced by certain gasses and smoke in contact with moisture. Pollution of waterways also results in acidity.

Moreover linseed oil, synthetic resin varnishes and other commonly used paint vehicles *themselves* produce organic acids in the normal process of aging. Many of these also accelerate corrosion.

When Red Lead is the pigment in a protective paint, rust-causing acidity is kept under control. Actually, a "controlled" acid level is maintained in the paint film. This is a singular property of Red Lead and also contributes to the utmost in film flexibility, impermeability and long life.

The value of Red Lead as a rust preventive is most fully realized in a paint where it is the only pigment used. However, its rust-

resistant properties are so pronounced that it also improves any multiple pigment paint. No matter what price you pay, you'll get a better paint for surface protection of metal if it contains Red Lead.

\* \* \*

Write for New Booklet—"Red Lead in Corrosion Resistant Paints" is an up-to-date, authoritative guide for those responsible for specifying and formulating paint for structural iron and steel. It describes in detail the scientific reasons why Red Lead gives superior protection. It also includes typical specification formulas. If you haven't received your copy, address nearest branch listed below.

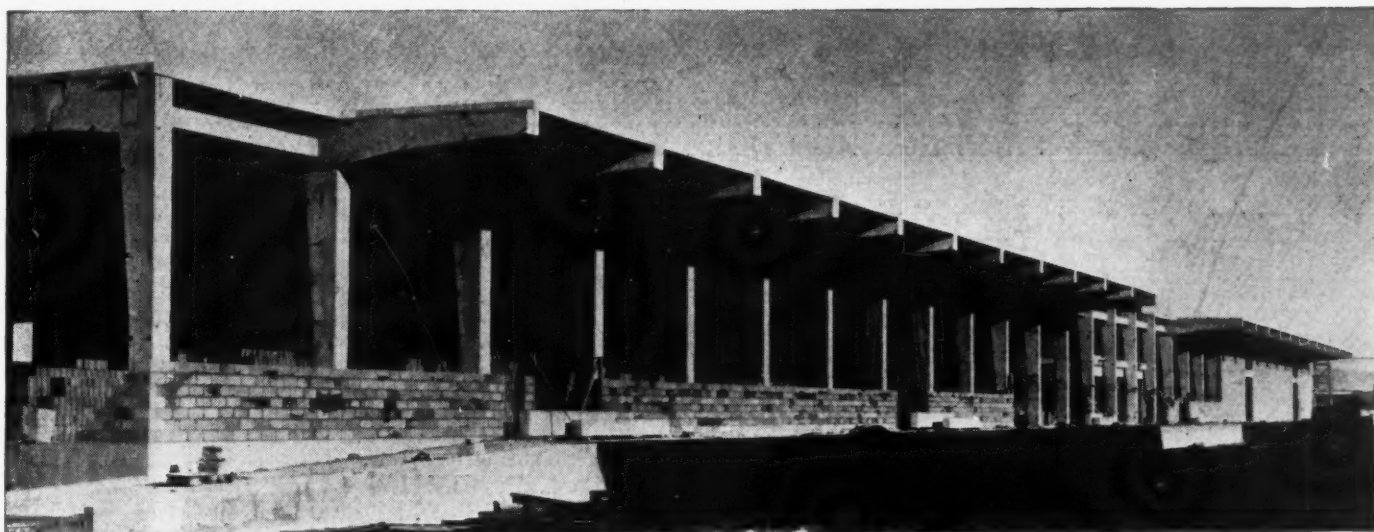
\* \* \*

The benefit of our extensive experience with metal protective paints for both underwater and atmospheric use is available through our technical staff.

**NATIONAL LEAD COMPANY:** New York 6; Buffalo 3; Chicago 80; Cincinnati 3; Cleveland 13; St. Louis 1; San Francisco 10; Boston 6, (National Lead Co. of Mass.); Philadelphia 7, (John T. Lewis & Bros. Co.); Pittsburgh 30, (National Lead Co. of Pa.); Charleston 25, W. Va. (Evans Lead Division).



## **Dutch Boy** *Red Lead*

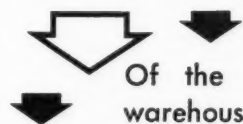


Framing of one warehouse 200' x 600' of precast structural members was completed in 40 days and a second in only 18 days.

## SPEEDY-LOW COST-CONSTRUCTION

*with*

## VACUUM CONCRETE PRECAST SYSTEM



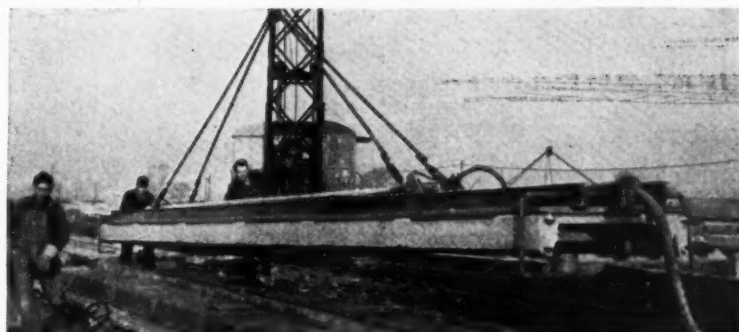
Of the construction of the warehouse illustrated above, Engineering News-Record wrote:

"Precast concrete roof slabs and hollow-box rigid frames made rapid erection of two, one-story warehouses at Mechanicsburg, Pa., possible at relatively low cost. These members, made with high early strength cement and drained of excess water by the vacuum process, were lifted from the forms within 24 hrs. after casting by suction pads composed of light steel frames faced with plywood and bordered with soft rubber gaskets. Ingenious assembly methods speeded erection."

An excellent design, reducing dead weight, made by the Chief of the Design Section of the Bureau of Yards and Docks, and the construction and assembly methods by the Contractor, Corbetta Construction Company of New York City, were the main features of this project.



Roof panels precast integrally with slab span 20 ft. between precast rigid frames of hollow-box section.



Half of rigid-frame girder was lifted from concrete mold by the Vacuum Concrete Lifter less than day after casting and ready for bolting

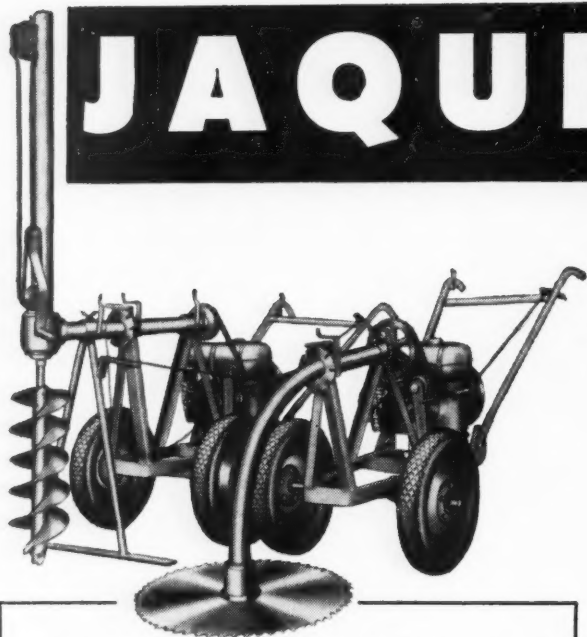


For full details, write today.

### VACUUM CONCRETE, INC.

4210 SANSOM STREET, PHILADELPHIA 4, PENNSYLVANIA

# JAQUES LABOR SAVING MACHINES



## JAQUES JR. POST-HOLE DIGGER

HOLE DIGGING is easy, fast, economical and efficient with the JAQUES JUNIOR POST-HOLE DIGGER. In ordinary ground, it bores 9" hole three feet deep in sixty seconds or less. Can be operated by one man. Throws dirt out leaving hole clean. Complete, F.O.B., Denison...

**\$398.00**

## JAQUES JR. PORTABLE POWER SAW

It's easy to clear land of brush and trees, with a JAQUES JUNIOR PORTABLE POWER SAW. Its 30" unbreakable saw, powered by 5 to 6 h.p. engine zips through brush and trees in seconds, cutting them off level with ground. Once tree is felled, angle of saw can be changed quickly to trim and cut tree to any desired length. Price of saw, complete, F.O.B., Denison, is only...

**\$379.50**

## SAVE \$200 ON COMBINATION

If you prefer, you can buy the SAW complete with frame and engine for \$379.50 and the Post-Hole Digger attachment, which is interchangeable with saw, for \$198.00 extra. Switch from Saw to Post-Hole Digger can be made in about five minutes.

## TRACTOR MOUNTED SAW

For the bigger clearing jobs inquire about the JAQUES TRACTOR MOUNTED SAWS.

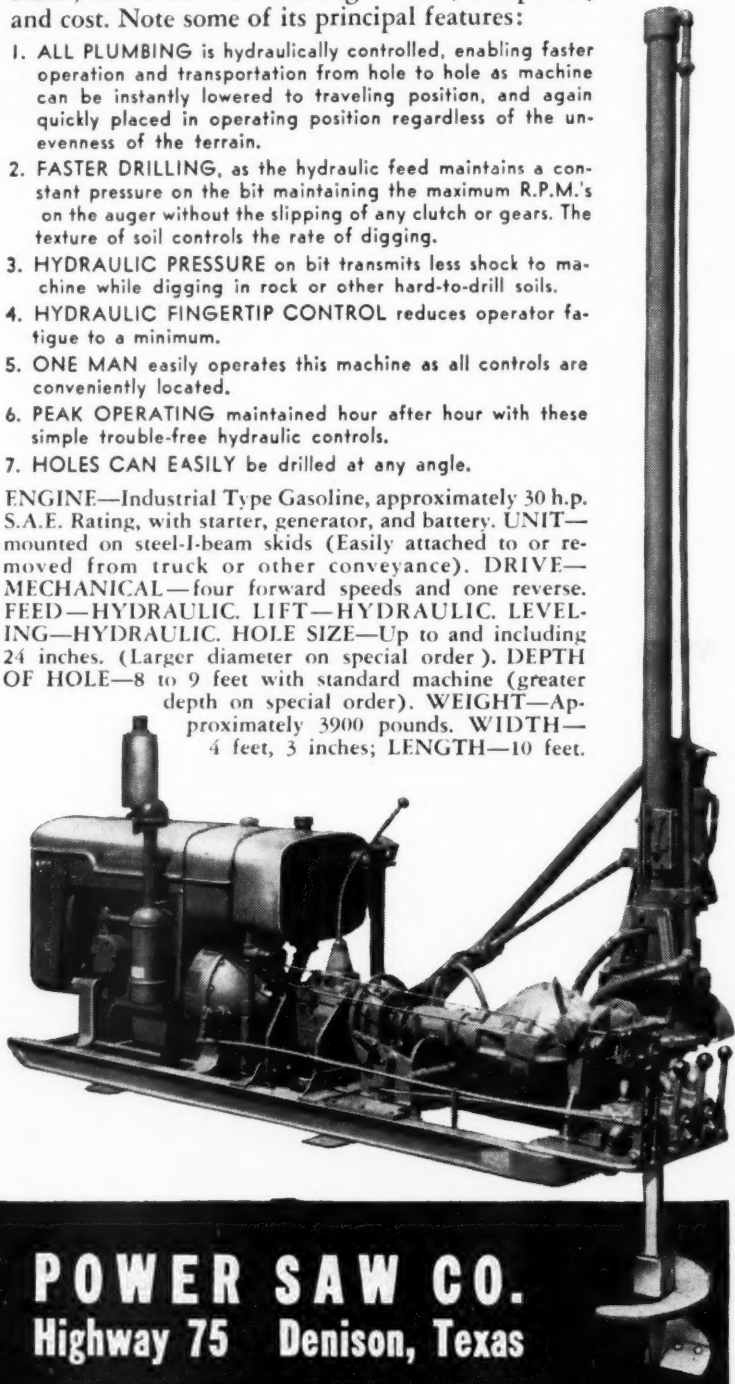
*Do the Job*

**QUICKER • BETTER**

If it's a big job like constructing a telephone, power line, or drilling foundation holes, THE JAQUES HYDRAULICALLY CONTROLLED EARTH BORING MACHINE below will do the job faster, easier, and better—at a saving in time, manpower, and cost. Note some of its principal features:

1. ALL PLUMBING is hydraulically controlled, enabling faster operation and transportation from hole to hole as machine can be instantly lowered to traveling position, and again quickly placed in operating position regardless of the unevenness of the terrain.
2. FASTER DRILLING, as the hydraulic feed maintains a constant pressure on the bit maintaining the maximum R.P.M.'s on the auger without the slipping of any clutch or gears. The texture of soil controls the rate of digging.
3. HYDRAULIC PRESSURE on bit transmits less shock to machine while digging in rock or other hard-to-drill soils.
4. HYDRAULIC FINGERTIP CONTROL reduces operator fatigue to a minimum.
5. ONE MAN easily operates this machine as all controls are conveniently located.
6. PEAK OPERATING maintained hour after hour with these simple trouble-free hydraulic controls.
7. HOLES CAN EASILY be drilled at any angle.

ENGINE—Industrial Type Gasoline, approximately 30 h.p. S.A.E. Rating, with starter, generator, and battery. UNIT—mounted on steel-I-beam skids (Easily attached to or removed from truck or other conveyance). DRIVE—MECHANICAL—four forward speeds and one reverse. FEED—HYDRAULIC. LIFT—HYDRAULIC. LEVELING—HYDRAULIC. HOLE SIZE—Up to and including 24 inches. (Larger diameter on special order). DEPTH OF HOLE—8 to 9 feet with standard machine (greater depth on special order). WEIGHT—Approximately 3900 pounds. WIDTH—4 feet, 3 inches; LENGTH—10 feet.



# JAQUES

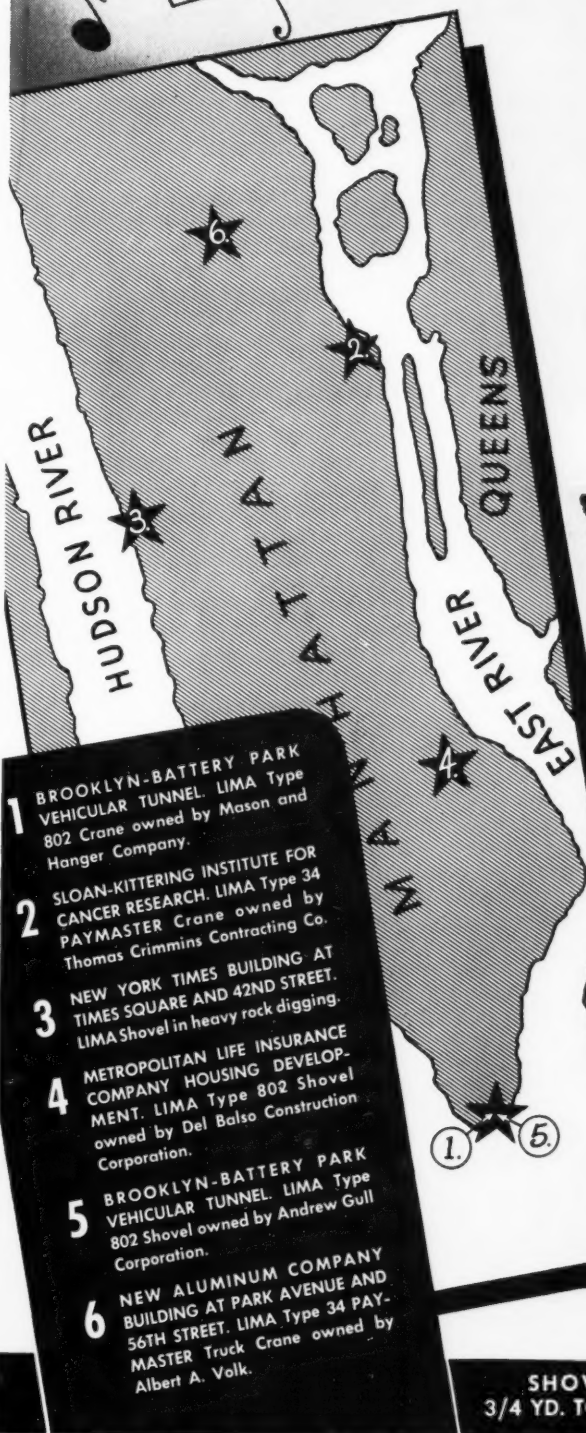
**POWER SAW CO.**  
Highway 75 Denison, Texas

# EAST SIDE WEST SIDE ALL AROUND THE TOWN

It is easily understood why LIMA cranes and shovels are found on the "headline" jobs in Little Old New York. Their inbuilt quality, steady performance, long, profitable life and ability to do more work in less time has won for them an enviable reputation with New York contractors. From the Battery to the Bronx, LIMA shovels and cranes are hitting the ball on such widely known projects as the Brooklyn-Battery Park Vehicular Tunnel, Metropolitan Life Insurance Housing Development, New York Cancer Center, New York Times Building, Aluminum Company Building and many other important jobs. Make your next shovel, crane or dragline a LIMA. They have been proved dependable on all kinds of excavating material handling work.

**LIMA LOCOMOTIVE WORKS, INCORPORATED**  
Shovel and Crane Division      Lima, Ohio, U.S.A.

OFFICES IN PRINCIPAL CITIES



**1** BROOKLYN-BATTERY PARK VEHICULAR TUNNEL. LIMA Type 802 Crane owned by Mason and Hanger Company.

**2** SLOAN-KITTERING INSTITUTE FOR CANCER RESEARCH. LIMA Type 34 PAYMASTER Crane owned by Thomas Crimmins Contracting Co.

**3** NEW YORK TIMES BUILDING AT TIMES SQUARE AND 42ND STREET. LIMA Shovel in heavy rock digging.

**4** METROPOLITAN LIFE INSURANCE COMPANY HOUSING DEVELOPMENT. LIMA Type 802 Shovel owned by Del Balso Construction Corporation.

**5** BROOKLYN-BATTERY PARK VEHICULAR TUNNEL. LIMA Type 802 Shovel owned by Andrew Gull Corporation.

**6** NEW ALUMINUM COMPANY BUILDING AT PARK AVENUE AND 56TH STREET. LIMA Type 34 PAYMASTER Truck Crane owned by Albert A. Volk.



# LIMA

SHOVELS  
3/4 YD. TO 5 YDS.

CRANES  
13 TONS TO 100 TONS

DRAGLINES  
VARIABLE

***“From the standpoint of efficient braking, these Hydrotarders proved satisfactory in every respect.”***

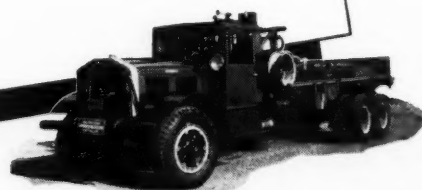


This report, from one of the world's leading oil companies, is based on six years' experience with Hydrotarder equipped trucks operating in South America. Installed on three heavy-duty oil field trucks in 1940, these Hydrotarders were transferred to extra heavy truck-trailers in 1943.

In his report, the operator continues:

"These Hydrotarder equipped truck-trailers have been in almost constant use since that time on long haul work from Puerto La Cruz to San Tome and we have found them extremely satisfactory . . . there is no better brake for hill country driving . . . a fully loaded truck can be brought almost to a standstill without using either the foot or emergency brakes . . . we have no hesitancy in recommending these Hydrotarders for mountain road work."

In hill country, Hydrotarder lowers truck operating costs by making such savings as: 25% on tires; 8% in fuel; 85% on friction brakes; 25% in trip time. Let us tell you how to lick your braking problem . . . how to keep trucks rolling faster, safer and cheaper. Write today.



One of the heavy duty oil field trucks on which these Hydrotarders were originally installed. Picture made during the test run.

## **Parkersburg HYDROTARDER**

### **THE PARKERSBURG RIG & REEL COMPANY**

PARKERSBURG, W. VA.

Manufacturers since 1931 of the famed Hydromatic Brake—the load retarder which makes possible the drilling of deep oil wells safely and economically. Its counterpart, the Hydrotarder, enables motor transportation to operate with greater safety, economy, and speed than was ever heretofore believed possible.

Distributed by

#### **HETZEL BROTHERS**

Engineers and Manufacturers

1972 Los Angeles Street, Los Angeles 11, California

#### **THE WINTER-WEISS COMPANY**

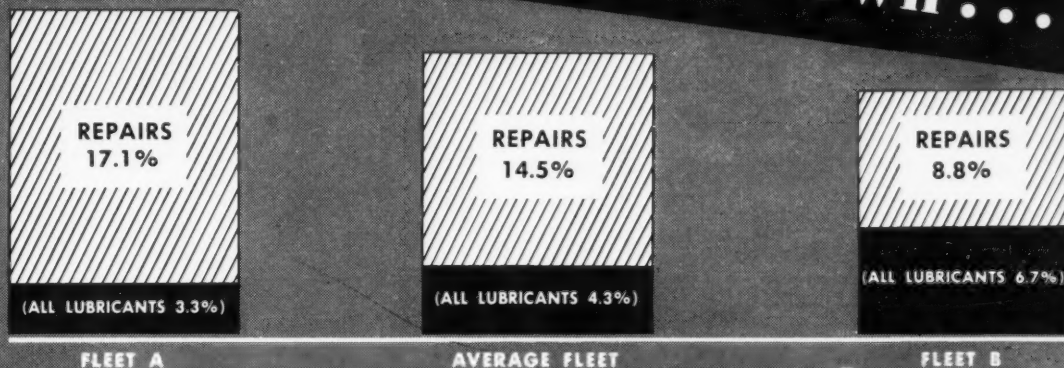
22nd and Blake Sts., Denver 2, Colorado

#### **The Pointer-Willamette Company**

238 N. E. Oregon St., Portland 14, Oregon

This chart shows how repair costs go down as lubricant quality goes up. It is the result of a survey of many fleets. In Fleet A lubricants accounted for 3.3% of fleet costs, whereas repairs were 17.1%. In an average of many fleets, lubricants cost 4.3% whereas repairs cost 14.5% of the total. In Fleet B, lubricants cost 6.7% whereas repairs were only 8.8%. Total repair and lubricant costs in Fleet B were the lowest of all fleets surveyed.

## Fleet Costs . . . Go . . . Down . . .



as lubricant quality goes up

**Why you should use a  
high quality motor oil  
for heavy duty service**

# Stanolube HD

LUBRICATION is the smallest part of operating costs on most fleets. But look what happens when you try to cut costs on this small item. The chart

above is based on cost surveys of many fleets. It illustrates how repair costs are low when lubricant quality is high—and how repair costs jump when lubricant cost is considered without regard to quality of motor oil, greases and gear lubricants.

It illustrates one reason why you should use the best motor oil you can get for heavy duty fleet service—Stanolube HD.

Stanolube HD has the *quality* to reduce maintenance. It keeps engines clean, gives more miles of full power operation, fewer pull-ins and overhauls. Try Stanolube HD on some of your hardest worked gasoline or Diesel powered equipment. A Standard Oil Automotive Engineer can help you take full advantage of the maintenance-reducing quality of Stanolube HD. Write Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois, for the Engineer nearest you.

**STANDARD OIL COMPANY (INDIANA)**

**STANDARD  
SERVICE**



Shown on the map above are a few of the principal highways of the great U. S. highway network, now 30 years old and begun with passage by Congress of the Federal-Aid Road Act in 1916. And it's just 20 years since U. S. highways have been uniformly marked, with north-south routes given odd numbers from 1 to 101, and east-west routes even numbers from 2 to 90. U. S. feeder routes have higher numbers with final digits referring to the main roads they serve.

There's a lot of history and romance in our highways, many of them following old wagon trails of pioneer days. What tourist, planning a long motor trip, hasn't thrilled to vistas opened up by U. S. 1... U. S. 11... U. S. 41... U. S. 2... U. S. 30... U. S. 40... ribboning away for hundreds of miles, up and down and across the land? And what businessman or salesman, travel-

ing long distances by automobile, hasn't been conscious of the benefits afforded by Federal highways?

By supplying contractors with the steel products needed for modern concrete roads and for bridges of all types, Bethlehem has had a part in the building of many of the important links in our national highway system. Today, with so many highways to be repaired or relocated, and new bridges built, Bethlehem again offers well-rounded service and a line of road steels designed and built for top-notch performance. If you have a highway job coming up in the near future, we suggest you get in touch with the nearest Bethlehem district office.

**BETHLEHEM STEEL COMPANY**  
Bethlehem, Pa.

On the Pacific Coast Bethlehem products are sold  
by Bethlehem Pacific Coast Steel Corporation

#### LEADING BETHLEHEM HIGHWAY PRODUCTS

- Road Joints
- Reinforcing Bars
- Bar Mats
- Guard Rail
- Guard Rail Posts and Brackets
- Wire Rope and Strand
- Pipe
- Hollow Drill Steel
- Structural Steel
- Sheet and H-Piling
- Corrugated Sheets
- Tie Rods, Spikes, Bolts and Nuts



## STEEL FOR HIGHWAYS

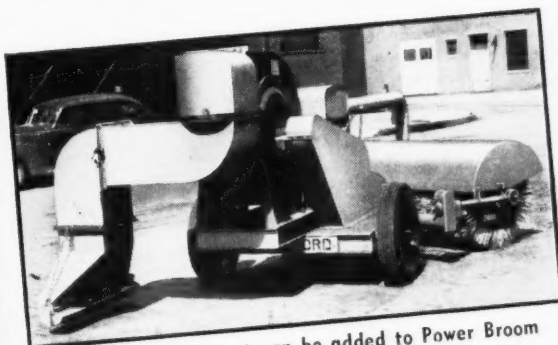
# THESE LITTLEFORD BROOMS CAN BE CHANGED FROM ONE SWEEPING DIRECTION TO ANOTHER IN 2 MINUTES TIME



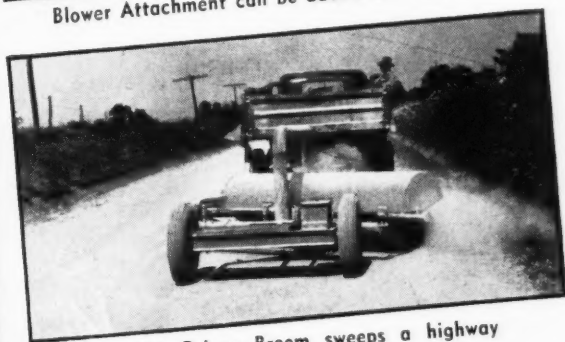
Littleford Model No. 108 Power Driven Broom

Littleford Road Brooms, both Power Driven and Traction Driven, are two way Brooms—can sweep in either direction changing from one position to the other in 2 minutes' time. In addition the Littleford Brooms have a Hydraulic Lift for regulating the tension of the brush on the road surface—this saves the wear on the Brush.

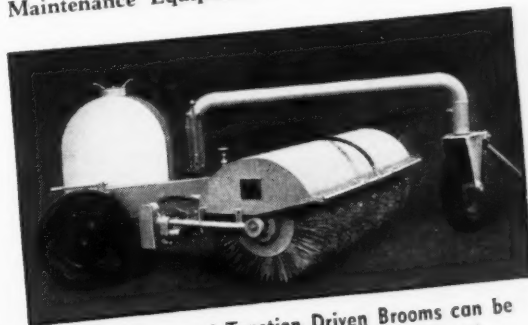
These are a few of the many features found on Littleford Brooms. Again Littleford leads the way in producing efficient Road Construction and Maintenance Equipment.



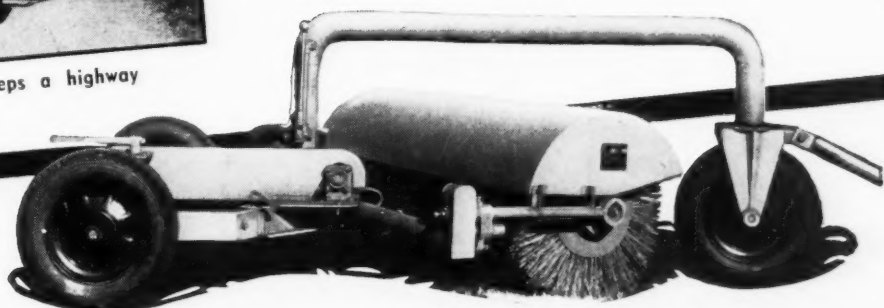
Blower Attachment can be added to Power Broom



Traction Driven Broom sweeps a highway



Both Power and Traction Driven Brooms can be equipped with a Sprinkler Attachment



Model No. 106 Traction Driven Broom



## LITTLEFORD

## LITTLEFORD BROS., Inc.

465 E. PEARL ST.,

CINCINNATI 2, OHIO

# Wherever the Job Takes You You'll Save with a Gardner-Denver ALL WATER-COOLED PORTABLE!

There are two things you look for in a Portable Compressor—*continuous service* and *low operating costs*.

You are SURE of getting both if you insist on having a Gardner-Denver All Water-Cooled Portable.

Because the cylinders of Gardner-Denver Portables are *completely* water-jacketed, these compressors will operate efficiently and continuously wherever the job takes you—in winter or summer—at high altitudes or low. And you'll get that service with low operating costs and a minimum of maintenance.

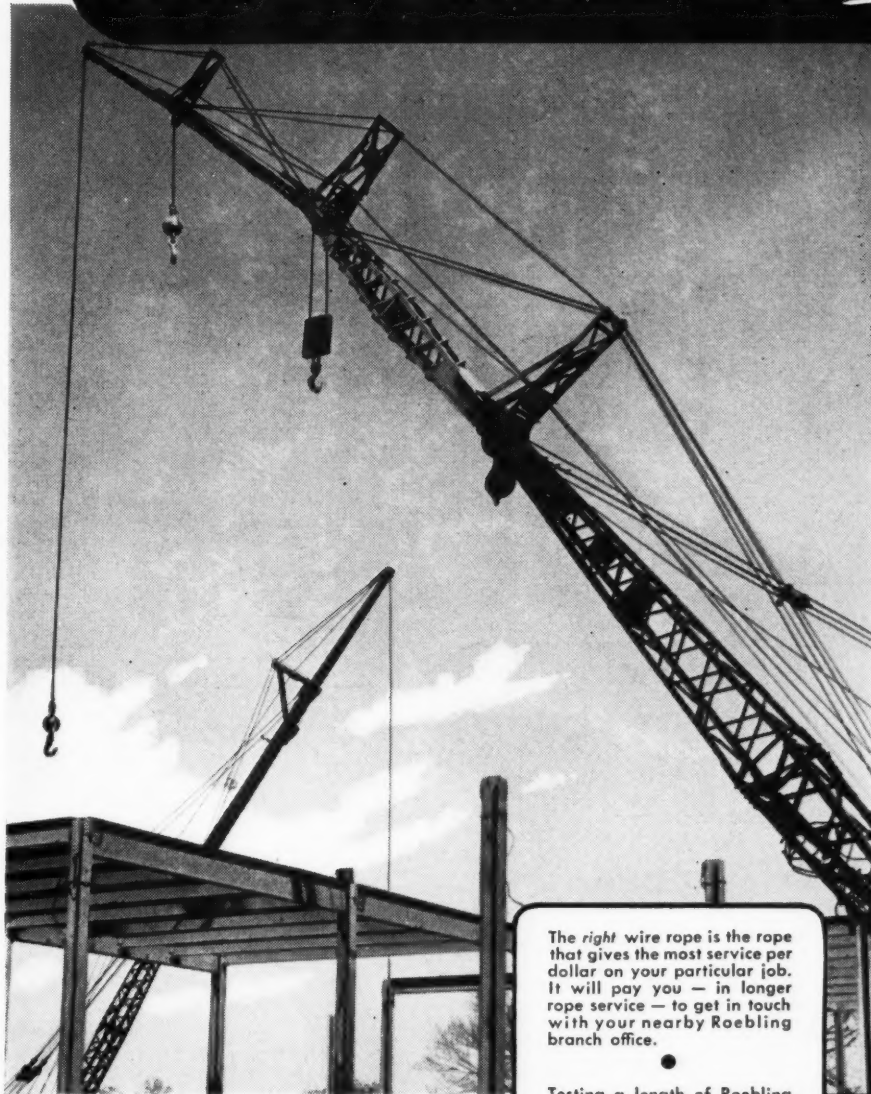
For all the facts about Gardner-Denver All Water-Cooled Portables, ask any owner—or write Gardner-Denver Company, Quincy, Illinois.



## GARDNER-DENVER

Since 1859

# HOW TO CHOOSE THE *RIGHT* ROPE



## ... and get lowest handling cost!

YOU DON'T ALWAYS have the time to study the often obscure details affecting wire rope service on your installations. But your Roebling Field Engineer is constantly making such studies.

His daily contacts include tracking down the facts on practically every type of wire rope installation. He has specialized knowledge of wire rope usage ... and of wire rope, too.

After careful study the Roebling Field Engineer can help you choose the *right* rope ... the one that will give you top service per dollar. Of course, he will recommend Roebling "Blue Center" Steel Wire Rope. For here is a complete line—both preformed and non-preformed—where he can find the wire rope that combines the right balance of strength and flexibility, of fatigue and abrasion resistance.

Call or write our nearest branch office. Get in touch with your Roebling Field Engineer.

JOHN A. ROEBLING'S SONS COMPANY

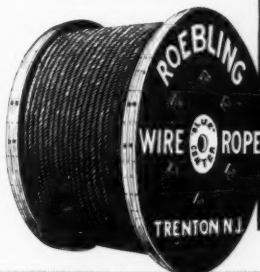
TRENTON 2, NEW JERSEY

Branches and Warehouses in Principal Cities

The *right* wire rope is the rope that gives the most service per dollar on your particular job. It will pay you—in longer rope service—to get in touch with your nearby Roebling branch office.

Testing a length of Roebling "Blue Center" Steel Wire Rope is important—to you. It gives engineering data to your Roebling Field Engineer ... information that can save your wire rope dollars.

Manufacturers of Wire Rope and Strand • Fittings • Slings • Suspension Bridges and Cables • Aircord, Aircord Terminals and Air Controls • Aerial Wire Rope Systems • Electrical Wire and Cable • Ski Lifts • Hard, Annealed or Tempered High and Low Carbon Fine and Specialty Wire, Flat Wire, Cold Rolled Strip and Cold Rolled Spring Steel • Screen, Hardware and Industrial Wire Cloth • Lawn Mowers



PREFORMED • NON-PREFORMED

# ROEBLING

PACEMAKER IN WIRE PRODUCTS



GM "Quad 6"

## *For Great Diesel Power* take a cue from the Oil Fields

**W**HY are more and more drillers turning to General Motors Diesel engines?

Drilling for oil is 24-hour-a-day work, so an oil man's power has to be dependable.

It has to be able to take on increasing loads as the well gets deeper. It has to be reliable and require the minimum of maintenance. And it has to be portable.

GM Diesels fill all the oil-drillers' musts—then give them more. They are compact and powerful. They can be moved into a job fast and out again when it's done.

*So whatever needs for power you may have in road-making machinery, cranes, shovels or any other construction equipment—look to GM Diesels.*



### Features of GM Diesels Important to Every User of Power

- QUICK TO START**—on their own fuel
- LOW COST**—run on common fuel oil
- EASY TO MAINTAIN**—clean design plus accessibility
- LESS FIRE HAZARD**—no volatile explosive fuel
- COMPACT**—readily adaptable to any installation
- SMOOTH OPERATION**—rotating and reciprocating forces completely balanced
- QUICK ACCELERATION**—2-cycle principle produces power with every downward piston stroke

### DETROIT DIESEL ENGINE DIVISION

DETROIT 23, MICH. • SINGLE ENGINES... Up to 200 H.P.  
MULTIPLE UNITS... Up to 800 H.P.

GENERAL MOTORS

For Tomorrow's Way . . .

# Use a Buckeye Today!



↑ **Road Building** . . . Buckeye Material Spreaders, Fine-Graders and Road Wideners. Built in all standard sizes required by road construction work.



↑ **Earthmoving** . . . Buckeye Bulldozers and Trailbuilders with Buckeye Cable Power Control units, get more work out of the tractor.



CONVERTIBLE SHOVELS-BULLDOZERS-ROAD WIDENERS  
TRENCHERS-MATERIAL SPREADERS-R-B FINEGRADERS

The greater operating speed . . . the easier handling and adaptability . . . the simplified maintenance . . . and the lower operating costs you look for in the improved equipment of tomorrow, can be yours today with a Buckeye. On-the-job field records prove this repeatedly. Such advanced performance is no accident but rather the result of an engineering policy . . . that Buckeye engineering must begin in the field wherever Buckeye equipment is used. This coupled with a manufacturing experience of over 50 years is your guarantee of Buckeye quality and dependability. If you want to do your job better and faster for less cost today, check with Buckeye. Write for bulletins on any or all of the equipment described below.

**BUCKEYE TRACTION DITCHER CO.**  
Findlay, Ohio



↑ **Trenching** . . . Buckeye Trenchers — ladder and digging wheel types — in sizes and types for all requirements.

← **Material Handling** . . . Buckeye Shovels are built in 1/2 and 3/4 yard sizes . . . for operation as a crane, dragline, or trench hoe. Every operation is vacuum power controlled.

"TOMORROW'S WAY IS YOURS TODAY"

# Buckeye✓

# Clyde BUILDERS TOWERS CUT CONSTRUCTION COSTS!

Put a Clyde Builders Tower to work on your next job and you'll save both time and money.

There will be no delays in handling your materials . . . no costly scaffolds to build. Clyde Builders Towers are simple and fast to erect and just as easy to take down.

The tower is assembled on the ground . . . no erection hazards . . . and raised in one piece to its operating position. For short moves around the job or for storage, the tower folds back upon its frame.

With typical Clyde quality materials and design and a Clyde hoist furnishing the power, you're assured of safe, efficient and economical operation.

Four tower heights—36 ft., 46 ft., 56 ft. and 66 ft. Write for descriptive literature



## *The Clyde Line of Dependable Equipment*

HOISTS . . . DERRICKS . . . WHIRLEYS . . . CAR PULLERS . . .  
HAND POWERS . . . MINE HOISTS . . . PILE DRIVERS . . . DREDGE  
AND DOCK EQUIPMENT . . . DECK MACHINERY . . . BUILDERS  
TOWERS . . . LOGGING MACHINERY . . . TANDEM ROLLERS



## CLYDE IRON WORKS, Inc.

Duluth 1, Minnesota

# The Modern Way to Make the Grade

**E**NGINEERS and contractors confronted with exacting construction specifications and varying soil conditions are most enthusiastic in their endorsement of Monotube steel foundation piles.

Here's what they say:

"Driving is easier because of the fluted, tapered design. Our regular equipment does the job—no special driving rigs needed".

"Quick, simple field extensions often save hours and money".

"Tubular construction makes "top-to-toe" inspection possible—assures a good job".

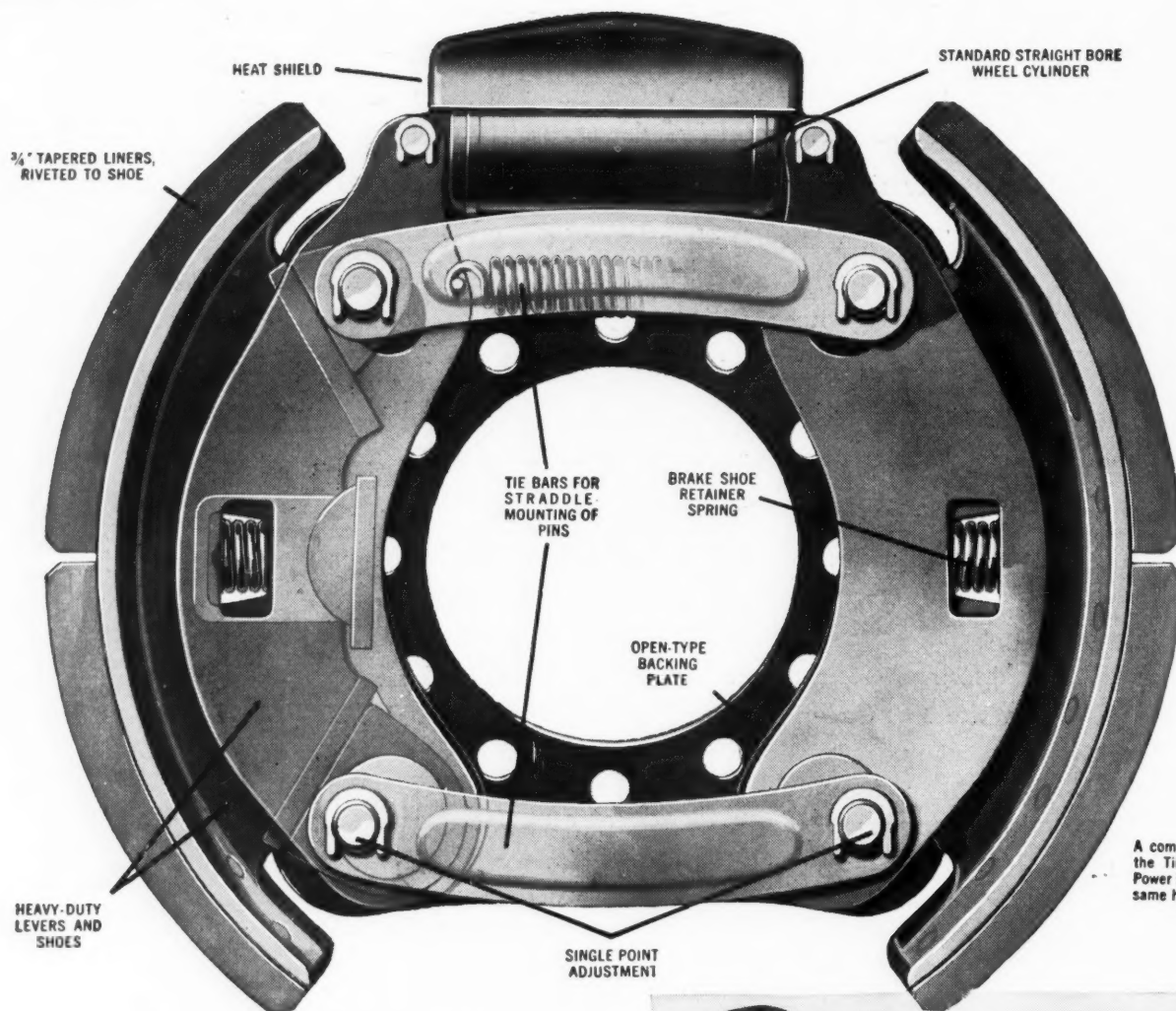
Why not benefit from Monotubes' many advantages on *your* next construction job? They are available in gauge, size and taper to meet all of your requirements. For able engineering assistance, or additional information write The Union Metal Mfg. Co., Canton 5, Ohio.



**UNION METAL**

*Monotube Tapered Piles*

# The only TRUE HEAVY-DUTY Hydraulic Brake\*



A companion brake to the Timken P Series Power Brake—uses the same hubs and drums.

## \* The New Timken DP Heavy-Duty Hydraulic Brake

The new Timken DP "Dual Primary" Heavy-Duty Brake is the only *true heavy-duty* hydraulic brake made today because:

1. It has big  $\frac{3}{4}$ " tapered liners for even wear and longer life in heavy-duty service.
2. It has open-type construction for maximum circulation of cooling air, giving increased braking efficiency with decreased fading.

It incorporates all the advanced features which have made the Timken DP Hydraulic Brake outstanding in the medium-duty field. For example: *Both shoes are forward-acting* in both forward or reverse. Braking effect is increased as much as 35% at all accepted hydraulic line pressures. There is only *one point of adjustment* per shoe—and it is easily accessible. *Shoes are easily and quickly removable* for relining by simply removing the retainer spring. Hydraulic cylinder and anchor pins remain undisturbed.

Specify this new DP "Dual Primary" Brake for heavy-duty service. Write for free folder today.



# TIMKEN AXLES

THE TIMKEN-DETROIT AXLE COMPANY, DETROIT 32, MICH.  
WISCONSIN AXLE DIVISION • OSHKOSH, WISCONSIN  
TIMKEN AXLE BRAKE DIVISION • DETROIT 32, MICH.

**FOR  
SAFE  
SUSTAINED  
OPERATION  
UNDER  
LOAD . . .**



*Made especially for this kind of service ↗*

## **SINCLAIR OPALINE TBT MOTOR OIL**

Under continuous, heavy load conditions greatest operating efficiency can be expected only when motor oil is made specifically to meet extra requirements.

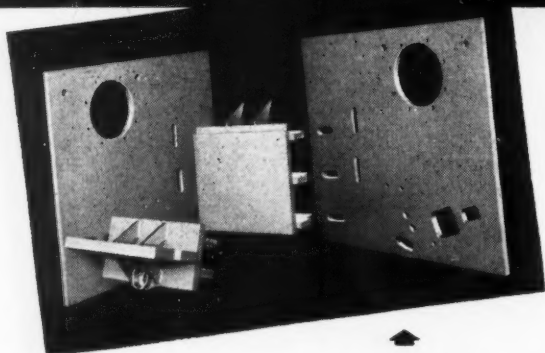
Sinclair OPALINE TBT MOTOR OIL is built for *extra-duty* service. It is manufactured specially to combat oxidation, gum, varnish, carbon deposits. It protects against bearing corrosion. Detergent and dispersal properties also contribute to keeping the engine clean.

Let our engineers analyze your operating conditions. OPALINE TBT may be the oil to solve your lubricating problem.

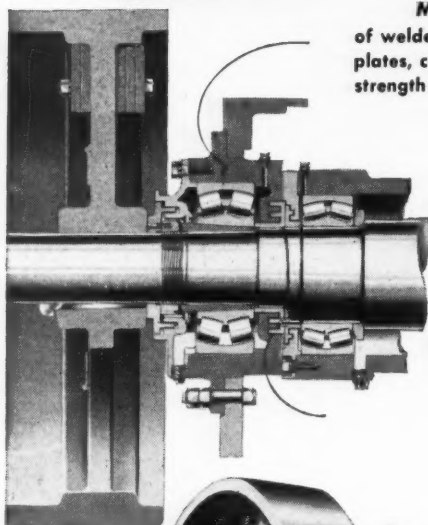
# **SINCLAIR LUBRICANTS-FUELS**

FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY, 630 FIFTH AVENUE, NEW YORK 20, N. Y.

# THESE ARE THE THINGS That Boost Production

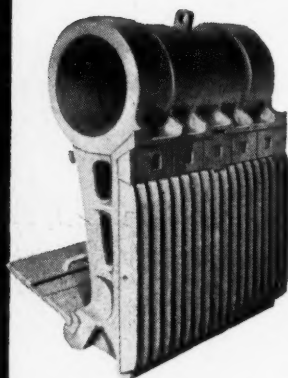


**MAIN FRAME**  
of welded, high carbon steel plates, combines tremendous strength with light weight.

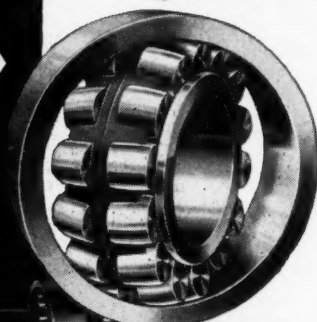


**BEARING ASSEMBLY**  
minimizes shaft strain by mounting main and pitman bearings close together.

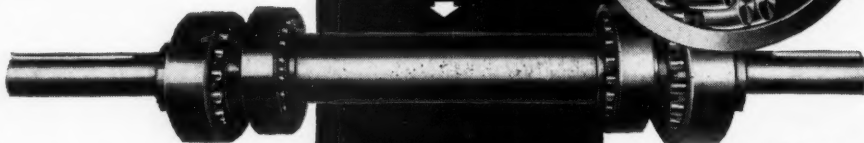
**HEAVY PITMAN**  
is accurately bored to accommodate the precision eccentric bearings.



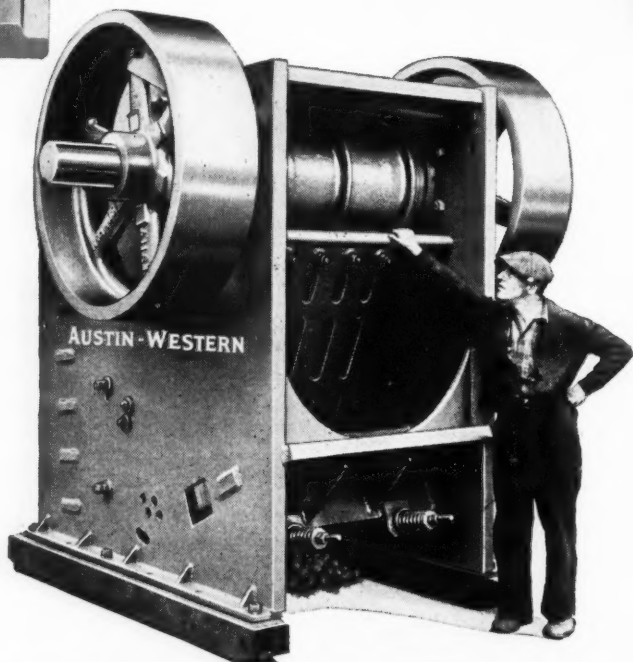
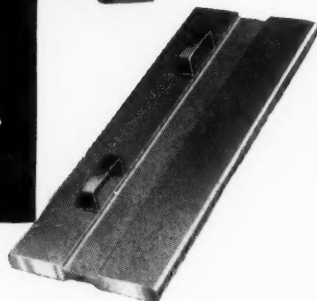
**S.K.F. BEARINGS**  
of self-aligning type, protect load-bearing surfaces.



**MAIN SHAFT**  
is forged, heat-treated, machined, ground, and polished.



**STEEL TOGGLE**  
is of uniform width, and proper and uniform strength.

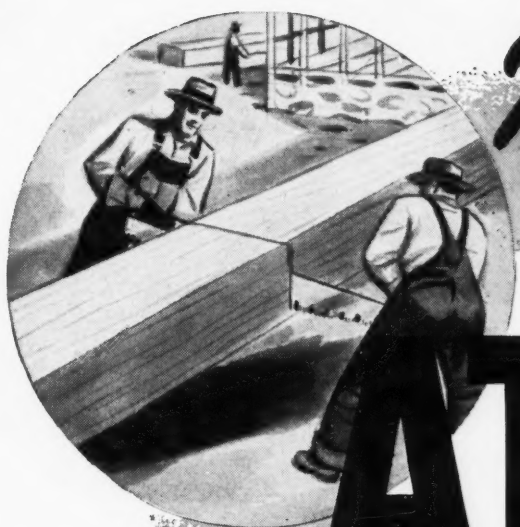


● Pictured on this page are but a few of the many exclusive features of design and construction which are responsible for the ability of *Austin-Western High-Speed Jaw Crushers* to exceed ordinary output standards by wide margins.

Bulletin 1960 tells the whole story. Your nearby A-W distributor will be glad to send you a copy.

**AUSTIN-WESTERN COMPANY**  
AURORA, ILLINOIS, U. S. A.

BUILDERS OF ROAD MACHINERY  
**Austin Western**  
SINCE 1859



*Minutes mean More  
with*

# ATKINS

## CROSSCUTS

*On the Job*



Standardizing on Atkins Crosscut Saws is like putting extra manpower on the job, but not on your payroll. A cutter turns out more work per day, because every Atkins is made to get more done per minute — and with less back-breaking work at that.

Keen-edged, segment-ground blades fairly glide through the "tough stuff" — piling, heavy planking, big timbers, logs, etc. — with a minimum of "drag" in the cut and on the cutter. They hold their smooth and easy running qualities with far less filing because they're made of "Silver Steel" . . . that tough, wear-defying metal to be had only in an Atkins.

Superior cutting qualities—plus correct design right down to the handles — are time and back saving reasons for making Atkins One-Man and Two-Man Crosscuts your standard equipment. Write today for catalog of complete size and type range.

Whatever your needs, Atkins has the specific type of saw to help you do it faster and easier. Among the Atkins contributions to better cutting are Docking Saws, Hand Saws, Circular Saws for portable power saws, Hack Saw Blades, etc. All are expertly tempered, ground and smithed . . . all are made of edge-holding "Silver Steel". Ask for full information.

No. 9 Atkins Silver Steel Crosscut — shown above — is one of a full range of tooth patterns and sizes.

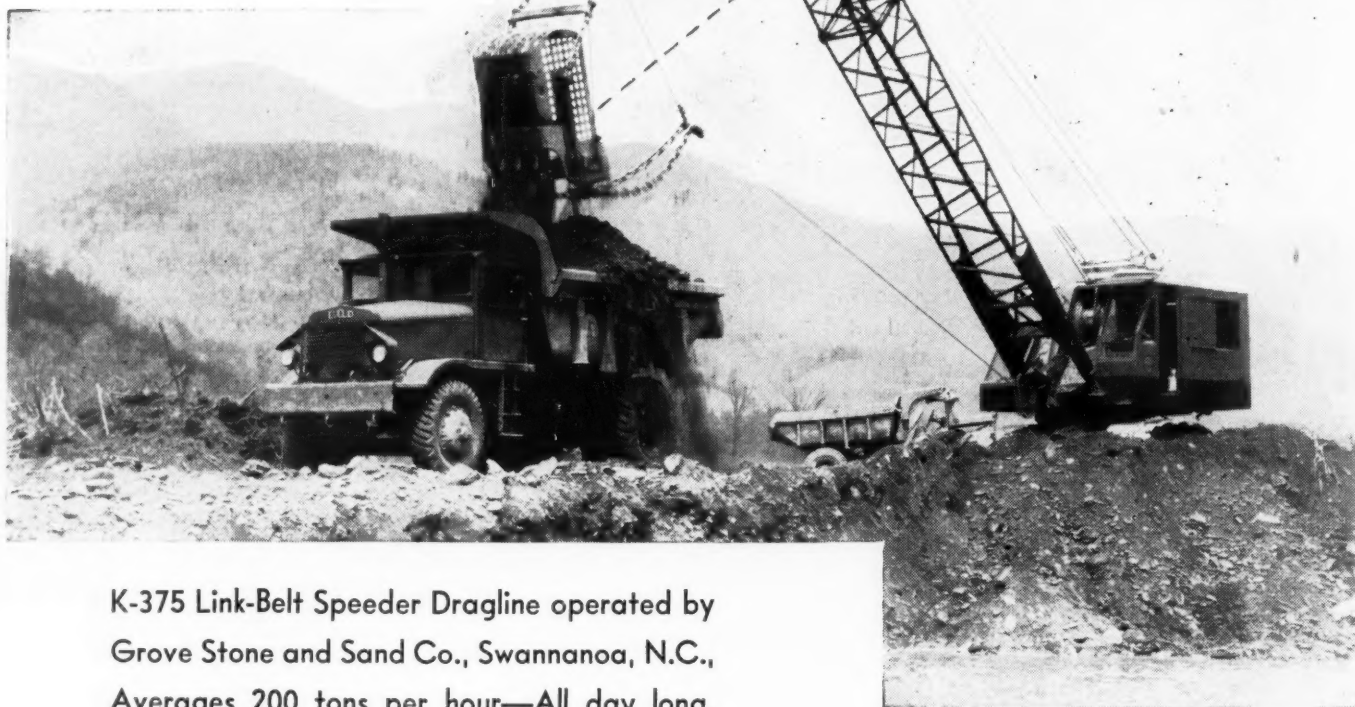


**E. C. ATKINS AND COMPANY** • Home Office and Factory: 402 S. Illinois St., Indianapolis 9, Indiana  
Branch Factory: Portland, Oregon  
Branch Offices: Atlanta • Chicago • Memphis • New Orleans • New York • San Francisco

# *Fast Work* WITH THE LINK-BELT SPEEDER *Keeps Trucks "On the Jump!"*

Scooping two yards of sand and gravel from river bottom to truck in less than a minute, this Link-Belt Speeder sets a fast pace for the 15-ton trucks. In fact, the dragline has doubled production at the plant, and has brought about a new technique in truck handling to take full advantage of the capacity of the machine.

Maintaining 10 to 15 truck-loads per hour all day is no task for the operator, since Speed-O-Matic full hydraulic operation gives him finger-tip, effortless control of every movement of the machine. "It's the easiest handled machine I've ever seen," he says.



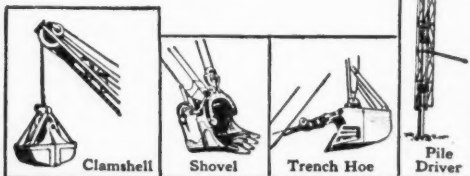
K-375 Link-Belt Speeder Dragline operated by  
Grove Stone and Sand Co., Swannanoa, N.C.,  
Averages 200 tons per hour—All day long.

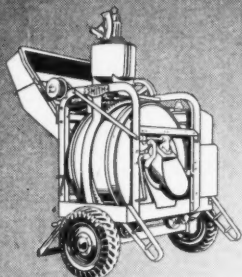
For Prompt, Efficient, Convenient Sales and Service:  
There is a Link-Belt Speeder Distributor Located Near You

Whenever the owner's requirements change, the 300 Series Machines can be quickly converted to shovel, crane, trench-hoe or pile driver. Any Link-Belt Speeder has multiple-use possibilities. Keep in the bidding, with your "many-purpose" Link-Belt Speeder!

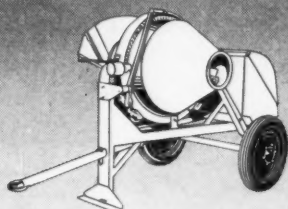
## LINK-BELT SPEEDER

*Builders of the Most Complete Line of*  
**SHOVELS-CRANES-DAGLINES**  
LINK-BELT SPEEDER CORPORATION, 301 W. PERSHING ROAD, CHICAGO-9, ILL.  
(A DIVISION OF LINK-BELT COMPANY)

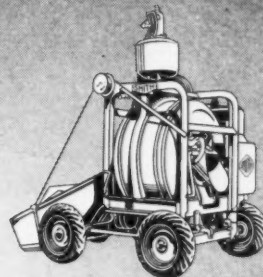




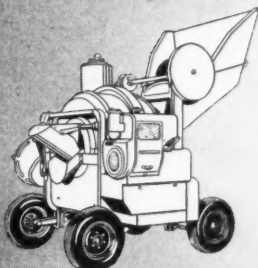
7-S TRAIL-SMITH



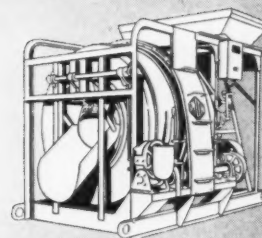
SMITH 3 1/2-S TILTER



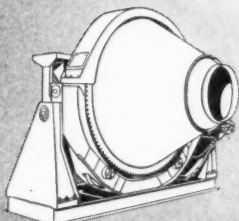
SMITH 11-S NON-TILT



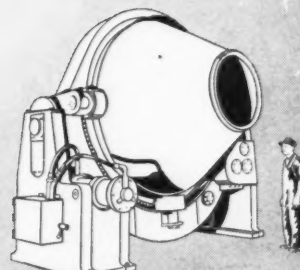
SMITH 16-S NON-TILT



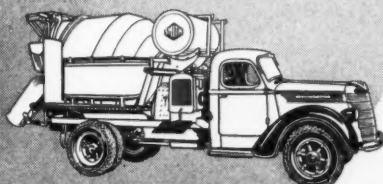
SMITH 28-S NON-TILT



SMITH 28-S TILTER

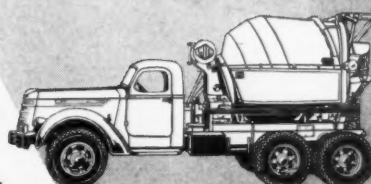


SMITH 112-S TILTER



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at the  
**PEAK**  
of almost a  
**HALF CENTURY of**  
**MIXER LEADERSHIP**



SMITH-MOBILE AGITATOR

You can select a Smith Mixer or Smith-Mobile Truck Mixer with assurance that it is the finest machine of its kind available. For back of every Smith is a rich heritage of mixer building experience and satisfactory performance.

At the turn of the century, the late Mr. Thomas L. Smith invented the first duo-cone drum, tilting type, concrete mixer. It was an excellent machine, though only the forerunner of the famous Smith line of concrete mixers that has made history in the construction industry. Every year, new improvements and refinements were added, resulting in greater convenience, speed and efficiency.

Today, Smith is the acknowledged leader in the industry. And the demand for Smith mixers is increasing by leaps and bounds. There are still some sizes available for prompt shipment and deliveries of other models are being stepped up as fast as possible. So be sure to write for descriptive literature.

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**That's why  
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# Construction Methods

WALDO G. BOWMAN, Editor

Volume No. 28

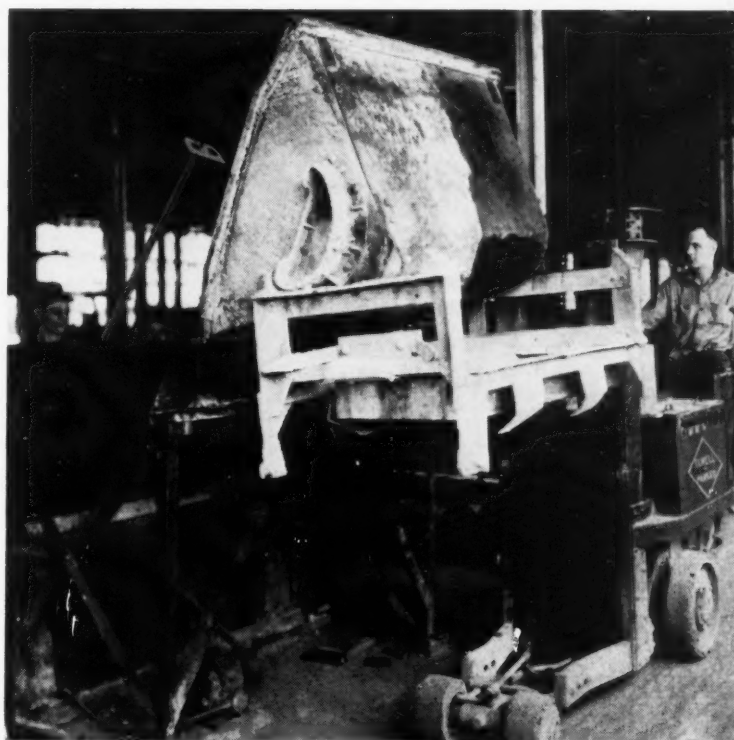
SEPTEMBER, 1946

Number 9

## *Electric Lift Trucks Aid Tile Manufacture*

INDUSTRIAL LIFT TRUCKS are used successfully by George Rackle Sons & Co., Cleveland, Ohio tile manufacturers, to transport concrete from mixer to pouring hopper and to move finished tile to the curing and storage yard. Production of roof tile is increased by using lift trucks with an inclosed electric drive that permits them to operate economically in the gritty atmosphere of the tile plant.

Standard 2x8-ft. roof tiles, made of concrete with burnt shale aggregate are 1½ in. thick with 3¾-in. thick shoulders and weigh 224 lb. each, or 35 percent less than those made with normal concrete. Tiles are poured on vibrating tables fed by gravity from concrete hoppers adjacent to each table. Concrete from a central mixing plant in the shop is taken to the hoppers in a 21 cu. ft. capacity tilting hopper mounted on



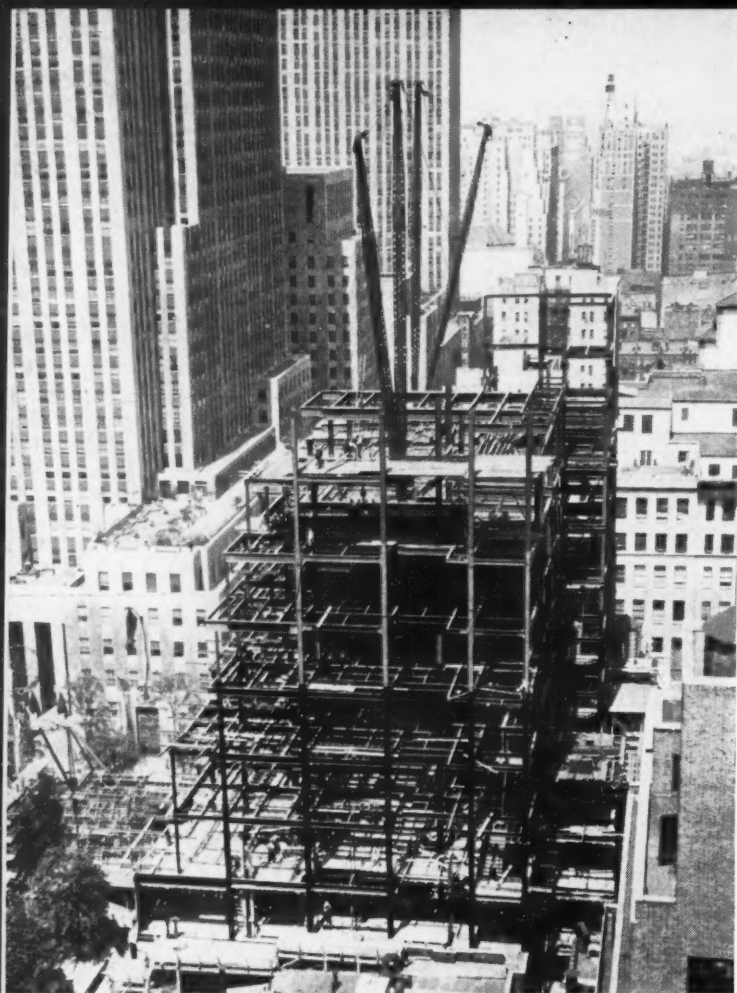
CONCRETE IS DUMPED from tilting hopper resting on steel frame pallet raised by electric industrial truck. Hopper has 21-cu. ft. capacity and is evenly balanced for easy dumping.



TILES ARE STORED in two-high tiers for curing. Elwell-Parker high-lift platform truck stacks corrugated steel pallets carrying concrete roof tiles.

a steel frame pallet and carried on an Elwell-Parker high-lift platform truck that lifts the concrete 4 ft. to the table hopper. Curved supports on the hopper ends ride on the pallet frame and enable a workman to tip the evenly balanced container to discharge concrete. Locking pins in the pallet frame hold the side-dump hopper in a vertical position during the trip from the mixer and in the discharge position during pouring.

After removal from the casting molds, the tiles are stacked on pallets made of corrugated steel bent to an inverted U-shape and are carried to the curing and storage yard on additional high-lift trucks.

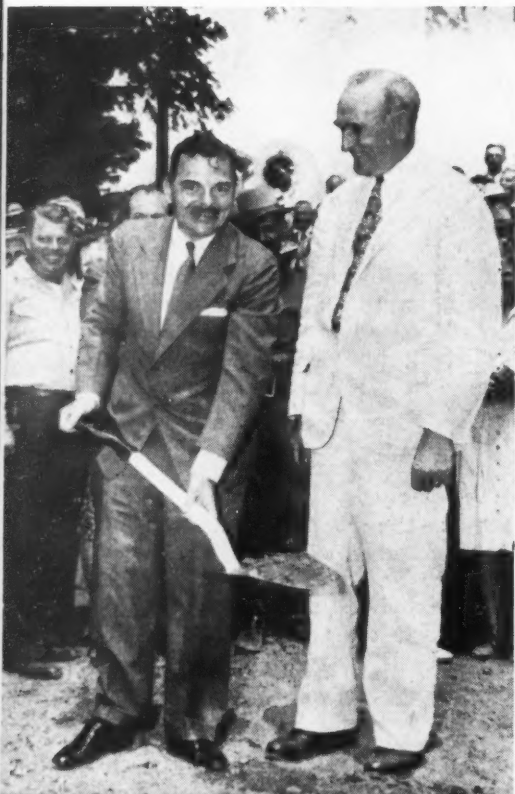


**STEEL-ERECTION DERRICKS** again pierce New York skyline after long absence on Best & Co. new 12-story department store at Fifth Ave. and 51st St. Design feature is cantilevered beams carrying floor loads in front of elevator shafts to allow more space for corridors. John Lowry, Inc., New York, is contractor.

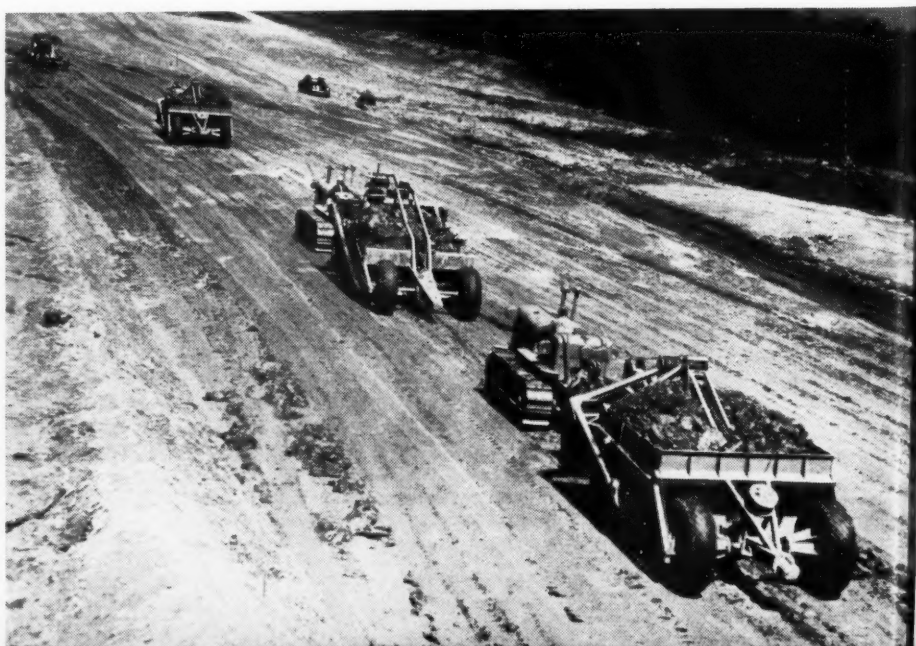
Page 86

**GROUND-BREAKING CEREMONIES** for New York State's \$202,000,000 express highway are held at Liverpool where GOVERNOR THOMAS E. DEWEY (below) turns first shovel of earth as CHARLES H. SELLS (right) state superintendent of public works, watches. Six-lane, 486-mile thoroughway will run from New York City to Pennsylvania state line south of Buffalo.

Press Assn. Photo



**CONSTRUCTION OF AIRPORT** 6 mi. northeast of Washington, D. C., will involve more than 1,000,000 cu. yd. of excavation. F. W. Schrom, Greenbelt, Md., contractor, is handling scraper hauls up to 1,600 ft. with four Allis-Chalmers HD-14C torque-converter diesel tractors.



→  
**GYPSUM BOARD SIDING** is nailed to studding by HENRY J. KAISER, who is directing work on this new material in Kaiser Experimental Laboratories at Emeryville, Calif. Siding, still in experimental stage, is impregnated with fiber glass and plastic.



## THIS MONTH'S NEWS REEL



WINNING CITIES in Ohio traffic safety contest are designated by special signs erected on federal or state routes. Contest is conducted annually by state highway department in cooperation with state traffic safety council.



GEORGE WASHINGTON BRIDGE gets first paint job in six years. About 30,000 gal. of paint will be required to complete job on mile-long span 600 ft. above Hudson River in New York.

Press Assn. Photo

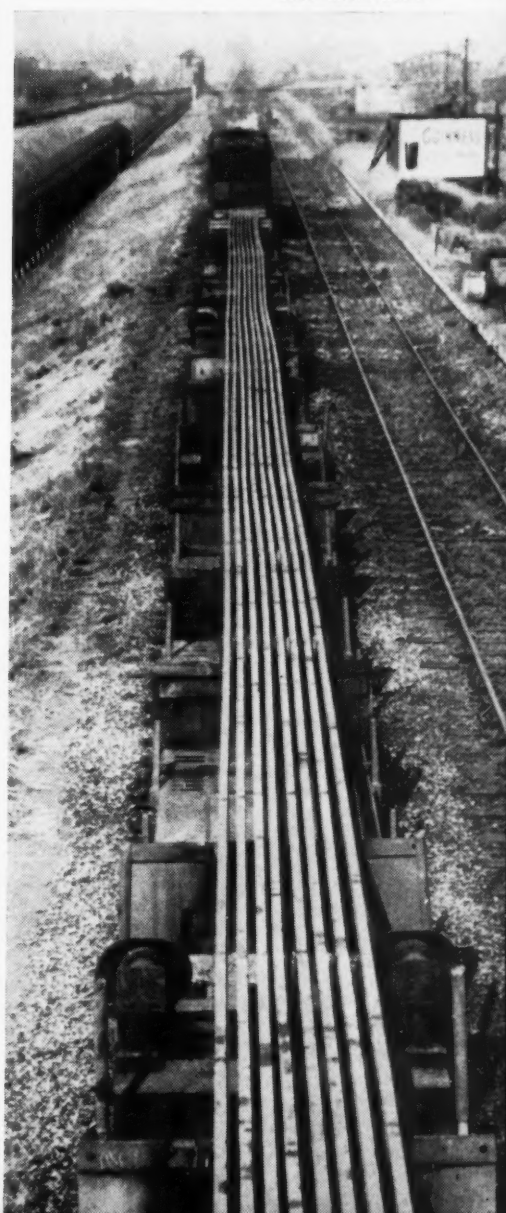
Page 87



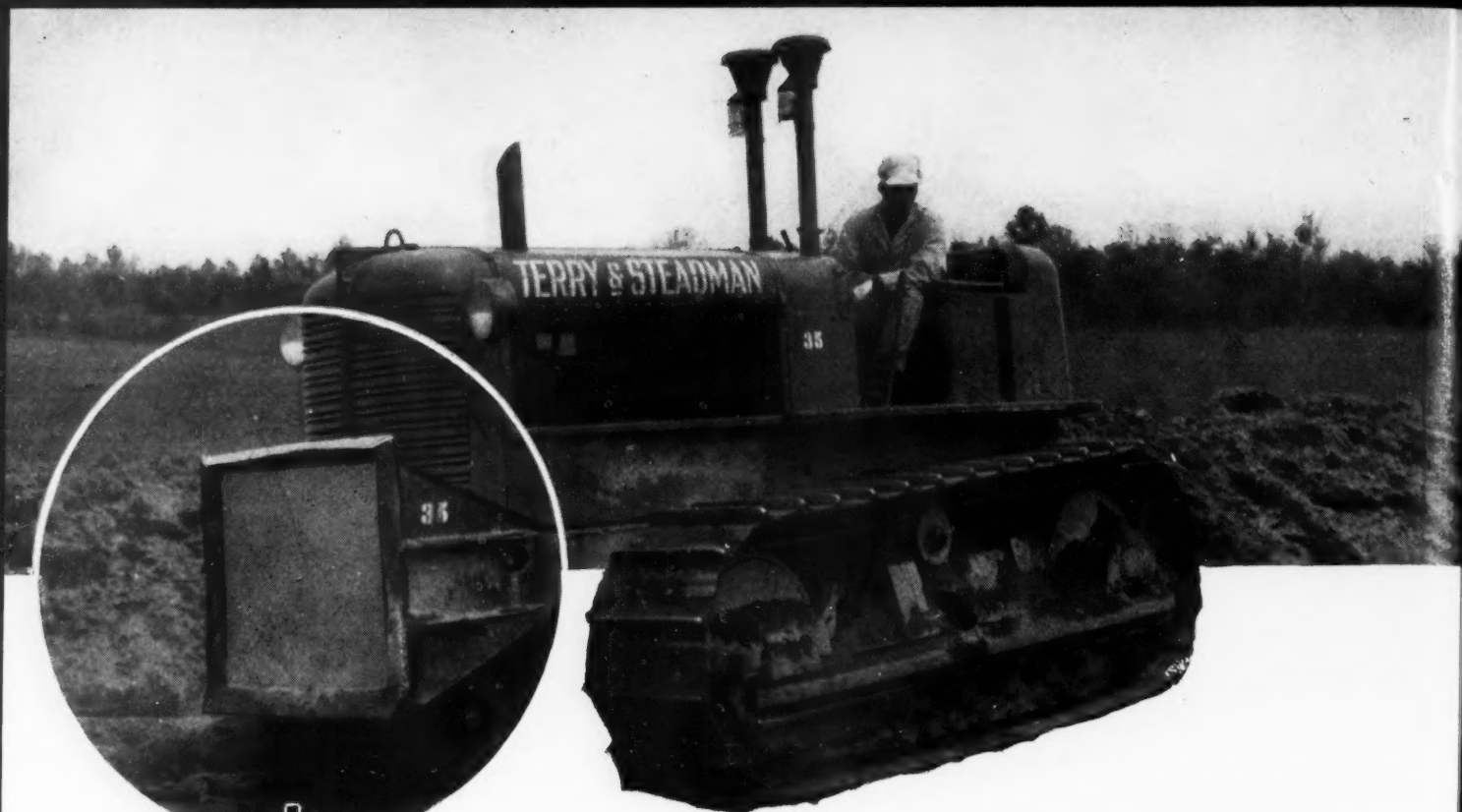
SUPER RUNWAY at AAF technical base, Wright Field, Ohio, will be built by W. L. Johnson Co. First spadeful of earth is lifted by LIEUT. GEN. NATHAN F. TWINING, commanding general, Air Materiel Command. Credited with an assist is Mrs. Fred I. Rowe, wife of head of the Johnson Co.

WELDED RAILS (below), 300 ft. long, are transported on specially built cars to extend line of England's Great Western Railway from North Acton to Greenford.

Wide World Photo



AIRBORNE CONSTRUCTION COMPANY is F. H. McGraw & Co., of Hartford, Conn., which has purchased twin-engined Beechcraft airplane to maintain contact with domestic and foreign branch offices and jobs. Here CLIFFORD STRIKE (left), company president, watches his daughter, CONSTANCE SUE, christen plane to be piloted by RICHARD BANDFIELD (center).



TYPICAL SPECIAL pusher plate built by contractors on job is this installation rigidly attached to Allis-Chalmers HD-14 tractor. Large size and cupped edges on plate prevent loss of contact between pusher and scraper when loading.

# **SPECIAL PUSH PLATES on Tractors and Scrapers for Tough Sand Loading**

PUSHPLATES ON TRACTORS AND SCRAPERS for push-tractor loading in the borrowpit may seem to be an insignificant item, but to Terry & Steadman, Bay City, Mich., contractors, they are the secret of successful handling of a dead, heavy sand in re-building Michigan highway M-20 between Midland and Mt. Pleasant. The job calls for raising the highway grade for about 5 ft. with a new fill 38 ft. wide at the top to carry a 22-ft. paving. The project runs for 5 mi. through fairly level country. A small amount of roadside borrow is available, but most of the fill comes from two sand pits that require up to 1½-mi. haul, though the average is ¾ mi.

Material in both borrowpits is a heavy, coarse damp sand that is difficult to load in scrapers. Because of the granular and lifeless texture of the sand, it tends to roll ahead of the scraper cutting edge rather than flow back into the bowl.

The contractor found a fleet of ten Koehring 12½-yd. Wheeler scrapers suitable for the job. However, the sand could be loaded easier and faster if the pusher tractors were able to help hold the cutting edge down during loading operations. Conventional

Page 88

ARRANGING SCRAPER OPERATIONS (below) so one rig is pulling into loading position in borrowpit while next scraper ahead is being loaded assures even flow of material to highway fill. Note special large pusherplates attached to front of Koehring Wheeler tractors for emergency use.





**HEAVY SAND** in borrowpits is difficult to load in scrapers because of tendency of material to roll ahead of cutting edge. Special pushplates on tractors and scrapers eliminate much of loading trouble.

pushplates on both tractors and scrapers were found inadequate for this work. They weren't designed to give a downward thrust to the scraper, and were so small that contact between pusher and scraper was lost during heavy loading and corresponding heavy pushing. The pusher plates tended to slip off the scraper plates.

The answer was a new set of job-made pushplates for both the tractors and scrapers. These were made large enough for full contact under all loading conditions and were designed to give a slight uplift to the tail of the scraper, thus holding the cutting edge down. Also, each tractor plate, 24x24 in., was fitted with a projecting rim all around to form cupped edges. On the scrapers a larger and heavier block was added to the tail pusher bar, and the same large tractor-type plates were added to the front of each scraper wheel tractor to enable the scrapers also to act as pushers in case of emergency.

Mounting of the push tractor plates varies. The tractor fleet on the project includes two Caterpillar D-8's and one D-7, four Allis-Chalmers HD-14's and two HD-10's. Most of the tractors have been equipped with the special push plates, three of them as push-



**KEY MEN** of contracting firm of Terry & Steadman pose in front of Koehring Wheeler on Midland highway job. Left to right: **LAWRENCE H. TERRY** and **BENTLEY STEADMAN**, partner heads of firm, superintendent **STANLEY KOZOWLSKI**, master mechanic **RAY LEHMAN** and general foreman **WILLIAM HODDER**.

Page 89

**ANOTHER TYPE** of push plate (below) is attached to LeTourneau Trailbuilder frame on Caterpillar D-8 tractor.



**DESIGNED SPECIALLY** for borrowpit loading is this big plate (below) fastened to rigid frame on Caterpillar D-8 tractor.





**COMBINATION** bulldozer and push tractor is handy for dumping operations on fill. Special pushplate is built up on Gar Wood hydraulic blade on A-C HD-10 tractor.



**EXTRA BLOCKS** have been built upon tail push bars of Koehring Wheelers, keeping pusher rigs well back of rear scraper tires to prevent damage. Bulldozers without pusher plates are not allowed to shove scrapers because of possible damage to tires.

Page 90

**SCRAPERS DOUBLE UP** on fill (below) for unloading with aid of one push tractor. Bulldozer at left keeps grade smooth, but also can assist in unloading because blade carries special pushplate.

ers only, the rest as bulldozers with the pusher blocks added to the blade. On two of the big rigs the plates are attached to rigid steel frames bolted to the tractors, while on one D-8 the plate has been mounted on the front of a LeTourneau Trailbuilder frame from which the blade has been removed.

Because of the heavy fill material, push tractors are also required on the dump. One combination bulldozer-pusher and one straight pusher take care of the fill end of the operations, with the bulldozer keeping the grade leveled off. Three Gar Wood 15-yd. hydraulic scrapers handle the roadside borrow work.

#### Equipment Well Maintained

Terry & Steadman believe in keeping their equipment in first-class shape through a well-equipped job shop. A truck-mounted lubrication and air compressor outfit services all machinery in the field with a minimum of loss in operating time. The contractors are endeavoring to simplify and standardize their equipment. For example, two of the Koehring Wheelers, originally fitted with air-operated gates, have been converted to cable control in line with the rest of the fleet to simplify maintenance. Also, they are finding a maintenance advantage in the fact that the Koehring scraper wheel tractors are powered with the same General Motors diesel engines as are the Allis-Chalmers tractors. For all cable-operated rigs they have standardized on MacWhyte  $\frac{5}{8}$ -in., 6x19 preformed wire rope with steel center, which they find most satisfactory for the service demanded of the cable.

In these days of spare parts shortage, all operators are taught to treat their machines with care and to report defects at once to reduce breakdowns. They are warned never to permit pushing of scrapers with bulldozers not equipped with pushplates, for such practice often results in scraper tire damage from the bulldozer blade. The contractors believe that keeping the equipment clean, well-painted and in good operating condition is a psychological incentive for the operators to take pride in their work.

Stanley Kozowski is superintendent for the contractors, Wm. Hodder is general foreman, and Ray Lehman, as master mechanic, keeps the equipment rolling. Al Lake is project engineer for the Michigan State Highway Department.



*Cited  
for  
Service*

HIS WORKS mark him as a practical, hard-headed prosperous contractor. His leadership and varied interests stamp him as a man of almost limitless energy. And his philosophy of bettering the lot of mankind would classify him as a dreamer if he were not so successful at it. Constructor, leader, philosopher—all these are in the make-up of Albert P. Greensfelder, chairman of Fruin-Colnon Contracting Co. of St. Louis.

Born in St. Louis in 1879, Greensfelder has never for long left his native city. Upon graduating in civil engineering from Washington University in 1901, he tried railroad construction engineering for 5 years, then joined Fruin-Colnon as a superintendent in 1906. He became president of the firm in 1928, and in 1940 moved up to chairman.

Under his direction Fruin-Colnon has become one of the largest contracting firms in the middle Mississippi Valley, specializing in industrial buildings, bridges and viaducts, seldom leaving the St. Louis area. During the war, as a co-venture with Massman Construction Co., the firm built the largest of all small arms plants in St. Louis.

However, Greensfelder's outside activities overshadow his construction work. Long interested in promoting the welfare of contracting, he has served on many committees of the Associated General Contractors and as president in 1931. He is the director of a



**ALBERT P. GREENSFELDER**

bank and several large corporations. Ever civic minded, he was chairman of the University City (St. Louis suburb) planning commission for 24 years. He is also interested in wild life and conservation, long advocating a parkway and game refuges the full length of the Mississippi Valley.

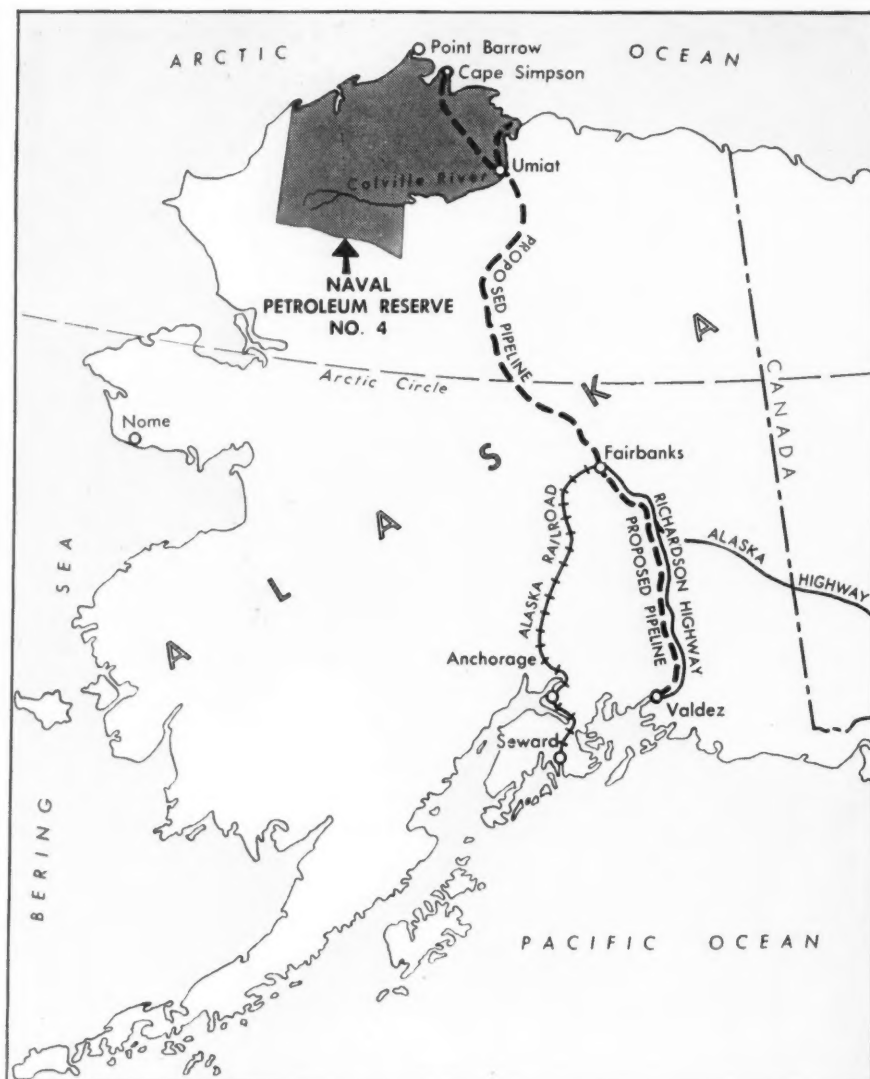
He has served as director of both the St. Louis and United States Chambers of Commerce, heading up the Construction and Civic Development Committee of the latter. Twice he has gone abroad as a delegate to construction congresses in London, Copenhagen and Stockholm. In the old NRA days he was vice-chairman of the Construction Code Authority.

The character and vision of the

man are best revealed by his own words, delivered at the 25th annual banquet of the AGC in Chicago: "I envisage the time not far distant when construction as an industry will recognize its opportunities and obligations, and in turn become recognized by the people as a pre-eminent precursor of civilization. . . . I foresee General Contractors, as such, realizing their genius for constructive generalship, guiding their regions and nation towards ever-higher living. . . . I see miracle men in construction in the forefront of progressive, civic and educational movements."

Some day the construction world will honor Albert P. Greensfelder for the prophet that he is.

# WINTERIZED EQUIPMENT AIDS



**NAVAL PETROLEUM RESERVE NO. 4**, where Seabees searched for oil, covers 35,000 sq. mi. of northern Alaska. Construction of 800-mi. surface pipeline to carry Umiat field oil having notably low pour point of  $-50$  deg. F. is under consideration.

Page 92

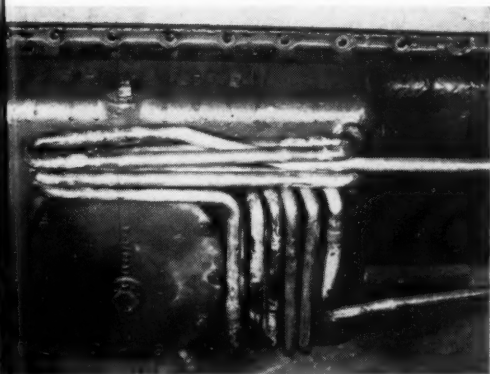
**HIGH LIFT TRUCK** (below) loads tracked Weasel on to plane for trip to Pt. Barrow, Alaska. Air travel is Arctic outpost's only transportation link with civilization except for ship travel during short summer.

**MILITARY PRIME MOVER** (below) supplements commercial equipment for hauling supplies at Pt. Barrow. Transportation equipment used at Navy's northernmost oil exploration project ranges from dog sled to airplane.



# NAVY'S ARCTIC OIL EXPLORATIONS

After a year of exploration by the Seabees, continuation of the work was turned over to Arctic Contractors, Fairbanks, Alaska, a combination of Hoover, Curtice & Ruby, Inc., New York, C. F. Lytle Co., Sioux City, Ia., and Green Construction Co., Des Moines, Ia.



**HEATING COILS** keep equipment's lubricating oil fluid at extreme low temperatures. Metal ducts supply other vital machine parts with warm air to permit operation in severe Arctic climate.



**ATHEY TRAILER** proves invaluable for transporting material through loose, well-rounded, beach sand at Pt. Barrow ship unloading area. Sand bed, 6 ft. thick, rests on permanent ice.

Official U. S. Navy Photos

Page 93



**TRACTOR TRAIN** begins 330-mi. trip from Pt. Barrow to Umiat oil drilling area. Core drill (left) is mounted on inclosed sled for year-round operation and easy moving.

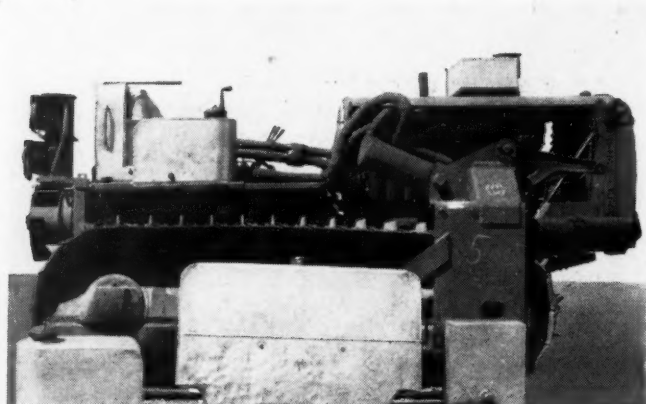
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**FORK LIFT TRACTORS** (below) unload palletized supplies. Speed is essential in unloading 8,200 long tons of cargo at Arctic Ocean base, ice-free only four to six weeks a year.





SWING CRANE loads lumber on Athey trailer. Construction of piers and water-front facilities is impractical here because of shifting ice pack prevailing throughout most of year.



D8 IS WINTERIZED for operations at temperatures as low as -40 deg. F. Arctic Seabees report that well-insulated hydraulic bulldozers with oil-warming equipment function more successfully than cable-operated machines. Operator's cab will be added.



SLED-MOUNTED BUNKHOUSE or wanigan is pulled through hole by two Caterpillar D8's. Wanigans also housed galley, radio equipment, and repair shop that traveled with train.

Page 94

PONTOON BARGE (below) with outboard motor carries tractor-mounted swing crane from ship to shore. Note winterized Caterpillar D8 with operator's cab and insulated hydraulic lines.



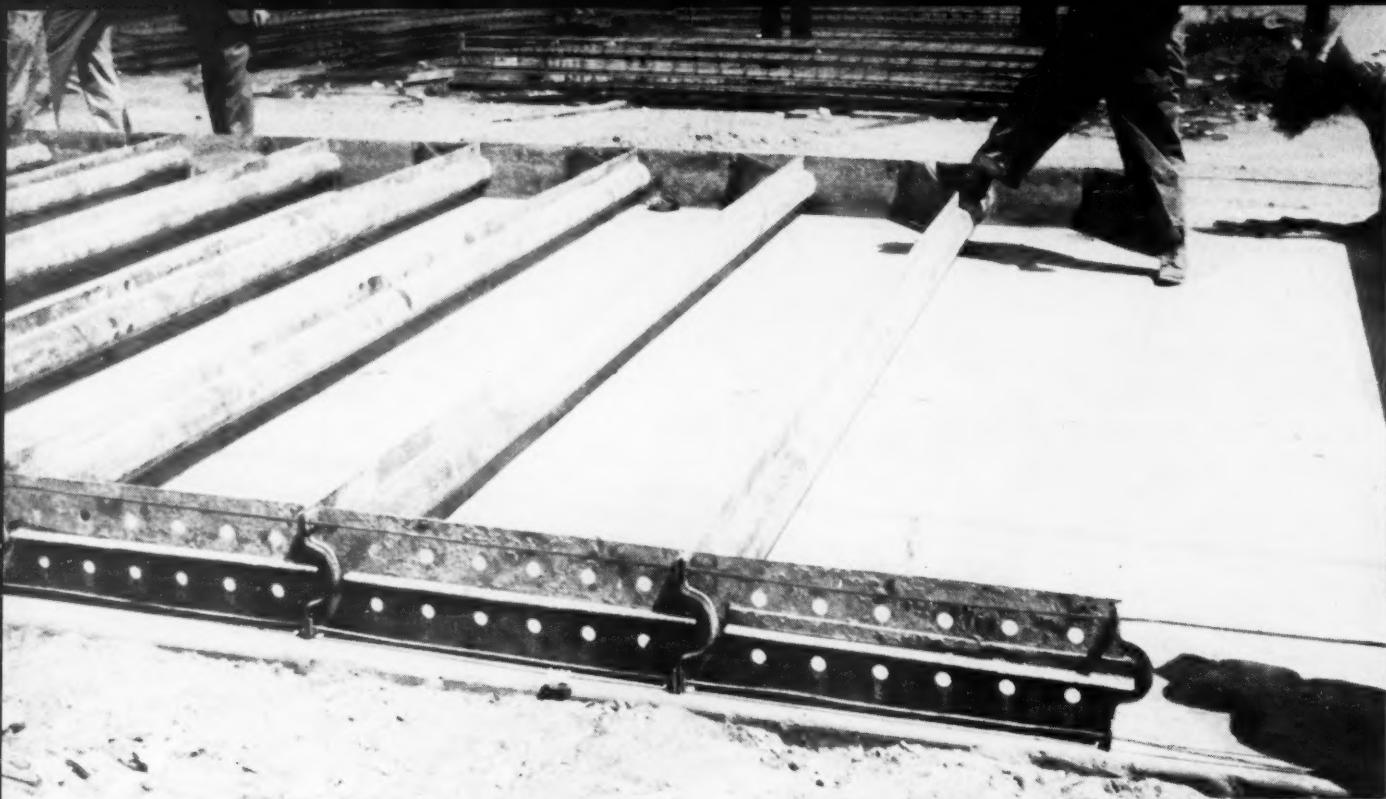


SEABEE WELDER repairs bow ramp of landing craft with plate cut from curved pontoon cell. Temporary tent camp used during summer was replaced by Quonset huts for winter occupancy.

Page 95

REFUELING AND GREASING OPERATIONS (below) took two hours each day. To prevent freezing, tractor engines were run continuously throughout 330-mi. trip from Pt. Barrow to Umiat. Note job-built sled of welded pipe.





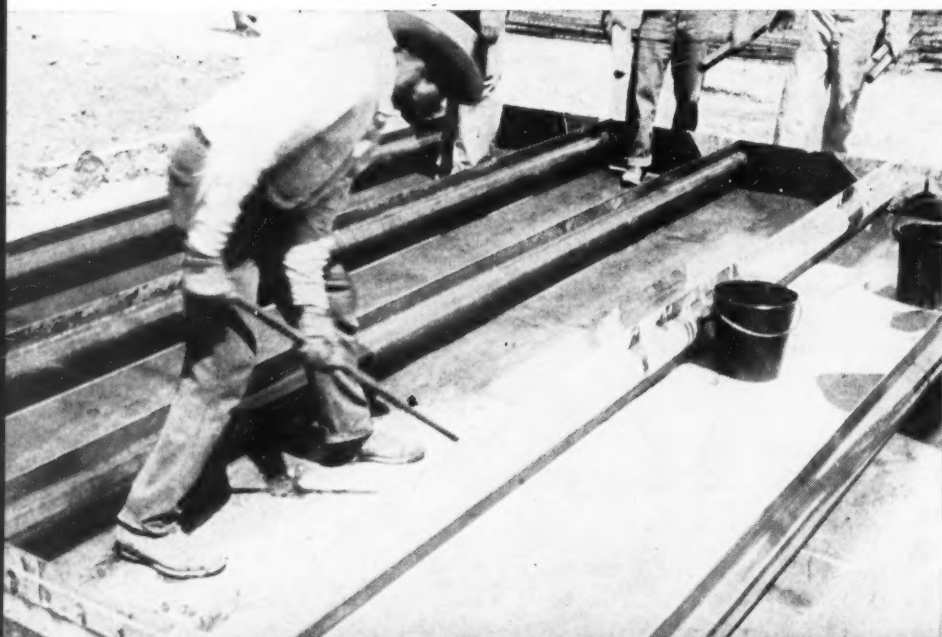
**SECTIONAL STEEL FORMS**, set on concrete pouring slab, make casting the concrete sheetpiles a simple job. Sections are held together by tierods across ends. Holes in near end sections are for projecting dowel rods.



**INSPECTING** Kansas City's new floodwall are, left to right: **FRED L. GEISS**, resident engineer, for U. S. Engineers; **LT. COL. SAM NEFF**, construction engineer, Kansas City District; **FRED KENDALL**, assistant construction engineer; **LARRY BARCUS**, a coming contractor; and **GRANT BARCUS** of the contracting firm of L. G. Barcus & Sons.

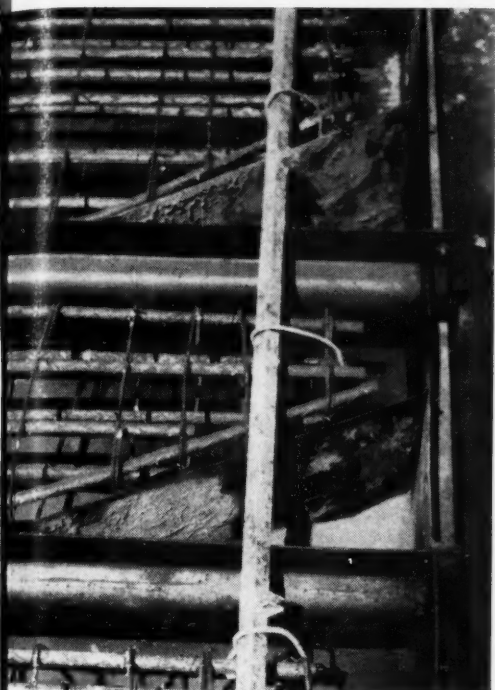
## **SHEETPILES**

**Cast on  
Concrete Platform  
For Kansas City  
Floodwall**



**SHEETPILE CASTING** and handling are highlights in building 5,000 ft. of cantilevered concrete floodwall along the Missouri River in downtown Kansas City, Mo. The contractor, L. G. Barcus & Sons, Kansas City, has developed a neat system of casting concrete sheetpiles on an oiled concrete platform within sectional steel forms that are easily set and

← **CONCRETE PLATFORM** and steel forms are swabbed with form oil prior to filling forms with concrete.



**TAPER ENDS** of sheetpiles are formed by bent plate that snaps into place. Reinforcing cages are suspended from rods across tops of sideforms.

stripped. A full-revolving tractor crane equipped with special tongs lifts the piles from the platforms and transports them to the storage pile. From storage these units are handled to the piledriver by a special homemade tractor carrier.

The project, which also includes 2,000 ft. of levee, is part of an extensive flood protection program for Kansas City and being carried out by the Kansas City District, U. S. Army Engineers. The concrete wall, varying from 12 to 16 ft. high, rests on a 2-ft. concrete mat from 10 to 18½ ft. wide. Concrete sheetpiles are not required under the full length of the wall, for in good ground a 6½-ft. toe-wall in the river side of the foundation slab is sufficient. However, part of the wall rests on filled ground, and here both sheetpile cutoff and precast foundation piles are needed.

Sheetpiles are 10 in. thick, 30 in. wide and 16 ft. long, cut at one lower corner to form a half-taper driving point. One edge is convex, the other concave to make a curved tongue and groove joint between

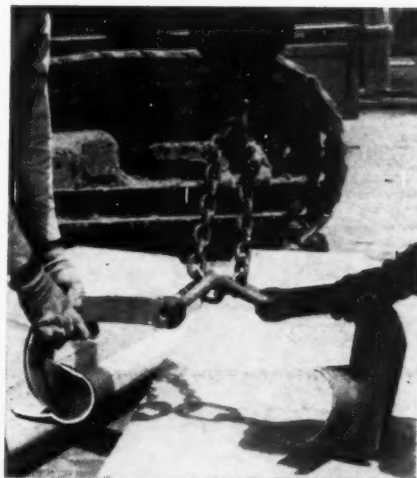


**CONCRETE CHUTED** directly from transit mixers fills forms. Internal vibrators assure dense mix. Note earth curing cover on previously-poured piles.

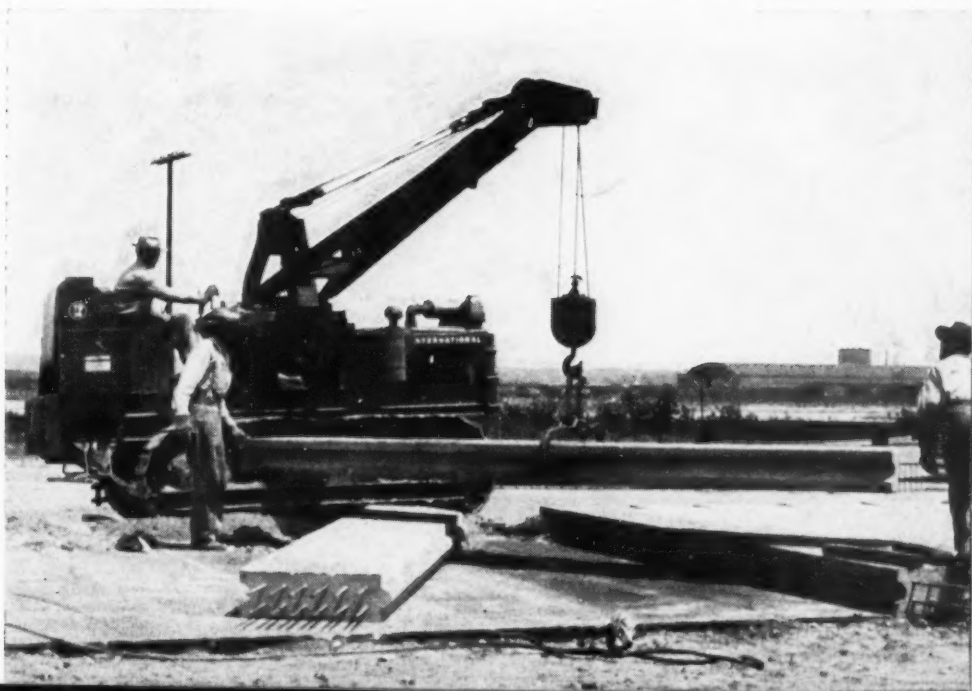
adjacent piles. They are heavily reinforced with a bar mat, with dowels extending over the top end to tie into the foundation slab. Precast foundation piles are 16x16 in. at the butt, 12x12 in. at the point and 20 ft. long.

#### Simple Forms on Concrete Platform

The sheetpiles are being cast directly on a smooth-surface concrete platform to which form oil is applied just prior to each pour to prevent the piles sticking to the platform. Forms are simple sec-



**SPECIAL TONGS** lift piles from platform to storage. Piles are pulled loose from group one at a time as forms are stripped.



**SHEETPILES** are transported to storage by International revolving boom tractor crane.



# SHEETPILES

... Continued

←  
**HOMEMADE CARRIER**, consisting of two-wheel trailer pulled by wheel tractor, transports sheetpiles to piledriver. Piles are lifted into carrier frame by cable from tractor power takeoff.  
 ↓



**CUSHION MAT** of  $\frac{3}{4}$ -in. plywood or wallboard, set beneath metal plate, keeps tops of sheetpiles from spalling while being driven into position.

Page 98



tional steel sheets, 10 in. high, interlocking together and tied across the ends by light rods that hold several units as a group. Reinforcing cages are hung from rods placed across the top of the sideforms. Top end sections of the forms are perforated to take the extending dowels. When end rods

are pulled out, these sections can be slipped endwise off dowels.

Concrete is chuted directly into the forms from transit mixers. Tops of the sideforms serve as screed boards, and screeding and floating is all the finishing required. Curing is by wet earth.

After the piles have cured, they are pulled loose from the group one at a time by a line from a tractor. Forms are dismantled as the piles are pulled out. Then, one at a time, the piles are lifted by the revolving boom tractor

←  
**SHEETPILES** (left) are driven by steam crane fitted with swinging leads. Usually jetting is required to get piles down through old fill material.



**FOUNDATION PILES** (below) are cast in alternate groups on concrete platforms. Piles of first group remain in place as sideforms for second group, as shown here. Steel endplates are only forms needed for second set. First piles are swabbed with oil to prevent second set from sticking.



crane equipped with special tongs, and transported to storage. From storage the sheetpiles are hauled to the piledriver by the homemade carrier rig pulled by a wheel tractor.

The piledriver is an old steam crane fitted with swinging leads. Because of the nature of the filled ground, jetting is usually required to get the piles down. At first the contractor was troubled with spalling of the top of the pile, but

this trouble ended with adoption of a  $\frac{3}{4}$ -in. mat of wallboard or plywood, drilled to fit over the dowels, which is placed against the concrete, topped by a thin steel sheet.

Foundation piles are also cast on the same concrete platforms. These piles are cast in alternate sets. The first set, formed with plywood panels, is spaced so that when the forms are stripped the finished piles can be used as sideforms for

the alternate set. Oiling the sides of the piles keeps the new by-cast set from sticking.

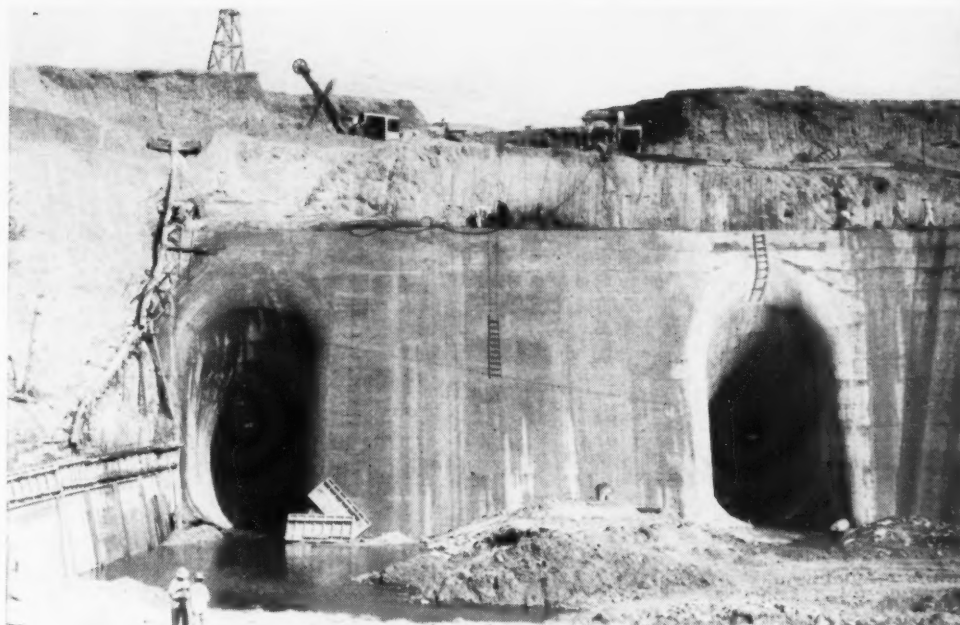
The project is under the direction of Col. Wm. E. Potter, U. S. District Engineer. Lt. Col. Sam Neff is construction engineer for the district, assisted by Fred Kendall. Fred L. Geiss is resident engineer on the job. For L. G. Barcus & Sons, Kansas City, Lonny Barcus is general superintendent.

## *American Contractors Build Mexican Dam*

USING AMERICAN equipment throughout, Morrison-Knudsen Co. of Mexico is rushing completion of the Sanalona earth-fill dam near Culican, Sinaloa, Mexico, in time to catch the flood waters next spring. The  $3\frac{1}{4}$ -million yard fill, rising 215 ft. high, will store 23,000 acre-ft. of water for irrigating 247,000 acres.

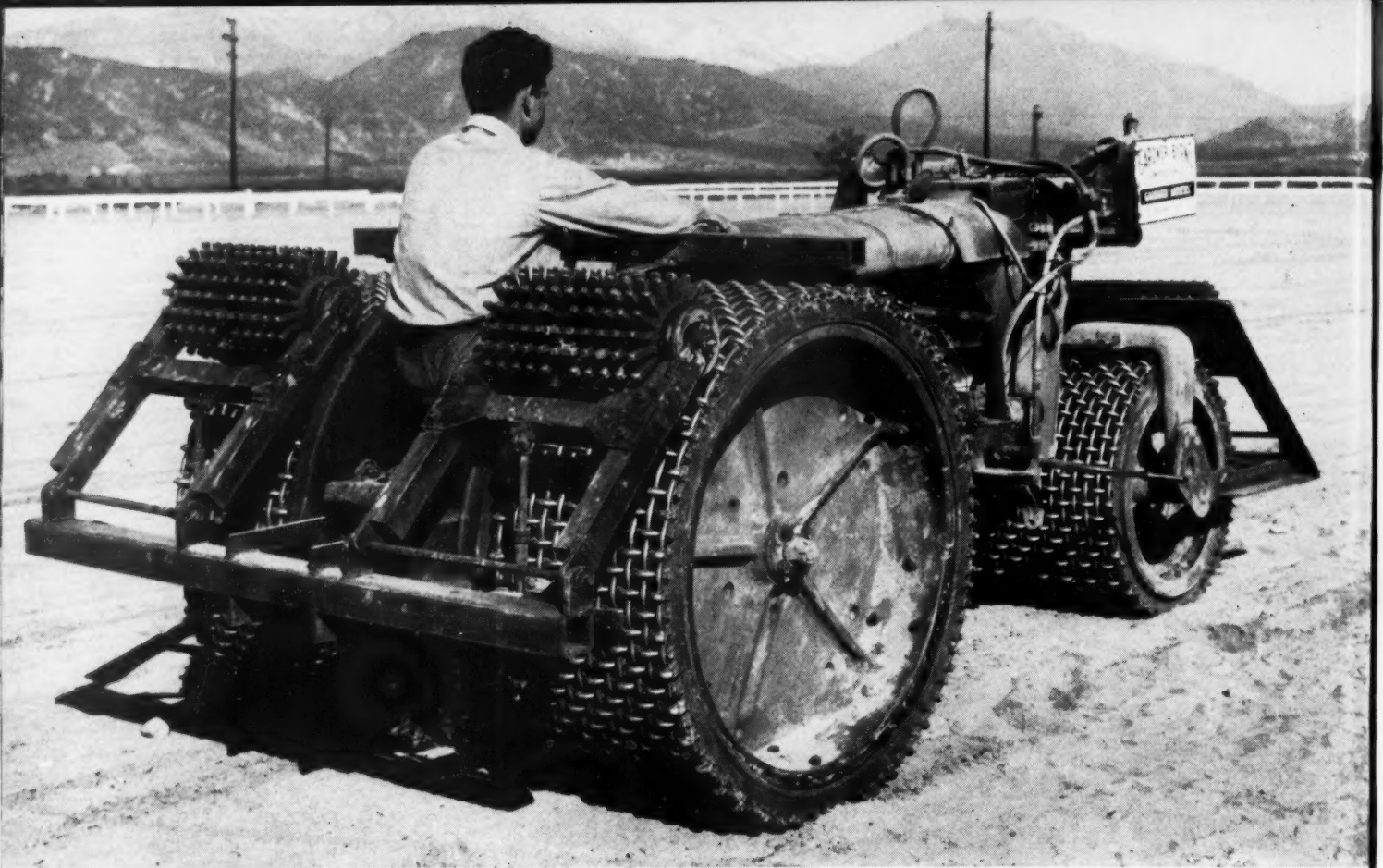
The diversion tunnels, spillway and all concrete work are being done by forces of the National Irrigation Commission of Mexico. Morrison-Knudsen has the contract for all earthwork.

Accompanying views show M-K's Euclid earthmoving fleet placing fill in the dam, and the double-barrel inlet portal of the diversion tunnels, driven by the Irrigation Commission.



Page 99





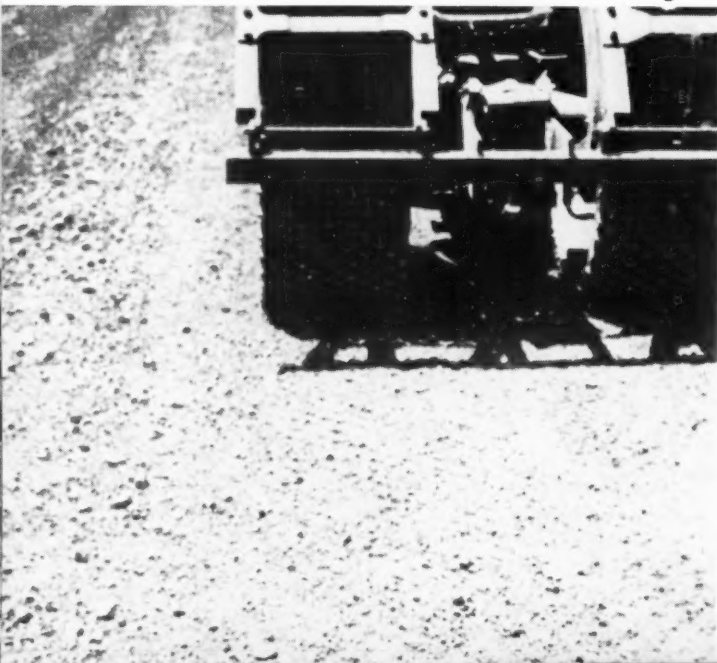
GRID ROLLER is here pushing rock below surface to avoid need for picking out by hand oversize stone in surface of rodeo field at Redlands, Calif.

## GRID ROLLER

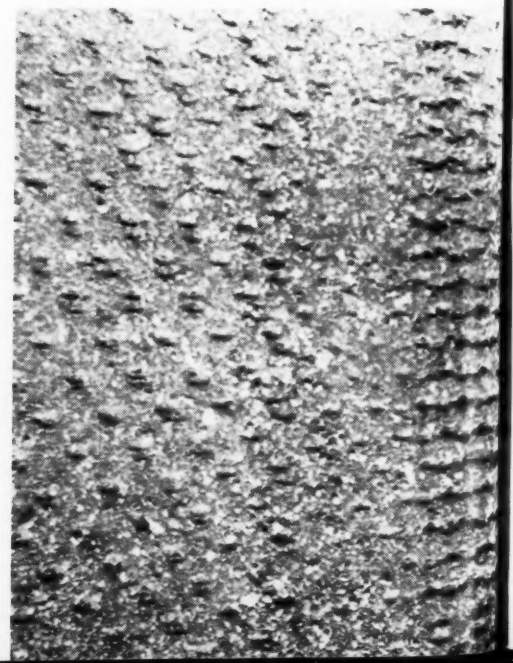
### Pushes Oversize Stone Below Compacted Surface

AIRPORT RUNWAY SURFACE on Catalina Island (below) is being freed of oversize surface stones by grid. Note oversize rock at left where grid has not yet passed.

A "GRID" ROLLER recently used on several paving jobs in southern California has been designed not only for compaction but also to get oversized rock away from the surface of subgrade or away from surface material that is to have additional treatment. The equipment was designed to supplement the standard sheepfoot roller but is concerned with treatment near-



→  
CLOSEUP VIEW shows Catalina airport runway surface after one pass of grid.



er the surface that does not require much penetration. In general it is to serve a need in between the sheepsfoot and the flat steel-wheel roller. Also on some jobs it should do away with hand labor in picking out oversize rock from the surface before final treatment.

In principle the idea is a grid or steel mesh composed of  $\frac{5}{8}$ -in. bars, overlapping, and forming square openings 1 in. on a side. Thus a very high concentration of pressure is attained immediately under the intersection of the steel bars with no pressure on the openings between the bars. This allows for freedom of adjustment in the individual soil particles that are being compacted.

The grid gives a very different effect from that of the flat steel roller in that with the grid it is not possible to form a crust. The grid tends to produce a densely compacted subsurface layer, leaving the surface proper with a pebbled texture quite different from the glazed surface that sometimes results from conventional flat steel rolling. The pebbled surface is said to bond well with any superimposed soil or base course layer. Where a smooth finish is preferred to the pebbled surface the grid rolling precedes final rolling with flat steel wheels.

The models of the grid roller here shown are more or less experimental types built up on a Fordson tractor. These have been used for compaction and for de-



**TO PREVENT CLOGGING** of open spaces by small stones, spiked wheels or "porcupines" ride each roller. Chains dragging on grid surface (wheel at right) also aid in cleaning.

pressing oversized stone (1) in a rodeo field, (2) on the soil-cement base course of a California state highway road job and (3) on the Catalina airport where the roller compacted mixed-in-place asphalt pavement and at the same time depressed the coarse aggregate in the mixture, leaving what is said to be "an unusually fine textured pavement surface."

Proposed later models will be

built with somewhat larger mesh openings and the "porcupines" (idlers) that keep the meshes clean will be placed on the inside of the wheels so that the idler spikes will exert an outward pressure which is expected to prevent clogging of the mesh when working in cohesive material.

The roller was developed by A. W. Gardner, of the Gardner-Byrne Construction Co., Redlands, Calif.

## Tall 175-Ton Tank Raised by

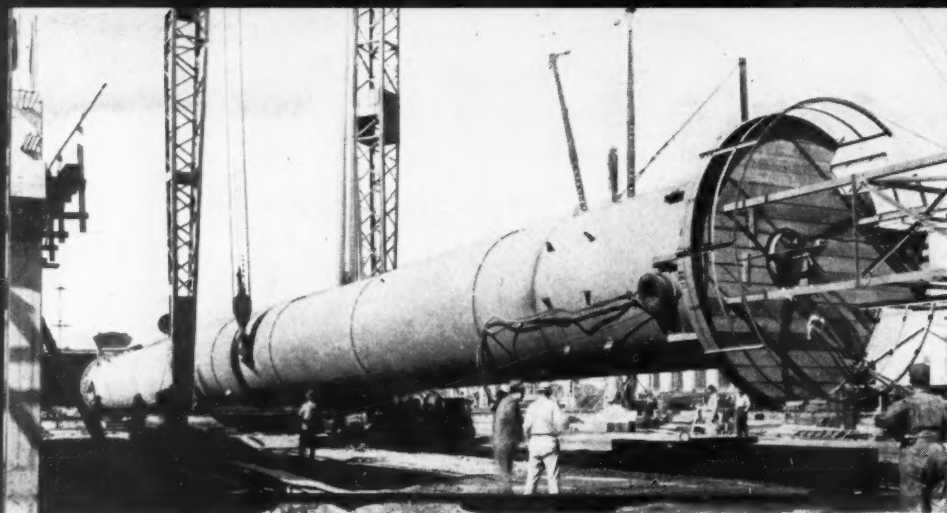
## DERRICK MASTS

SPECIAL RIGGING METHODS and equipment were employed to erect at a 100-octane aviation gasoline plant a 175-ton fractionating tower or tank 10 ft. in diameter and 172 ft. high. A steel frame superstructure adds  $14\frac{1}{2}$  ft. to the height, making the distance from base to top  $186\frac{1}{2}$  ft. Fabricated by welding at the Birmingham (Ala.) plant of the Chicago Bridge & Iron Co. the tall, heavy tank was shipped to its destination in two pieces and erected by the Foster-Wheeler Corp.

The accompanying photographs show the successive

**1 WELDED BRACKETS** on either side of tank provide hitches for attaching blocks from guy derrick masts.



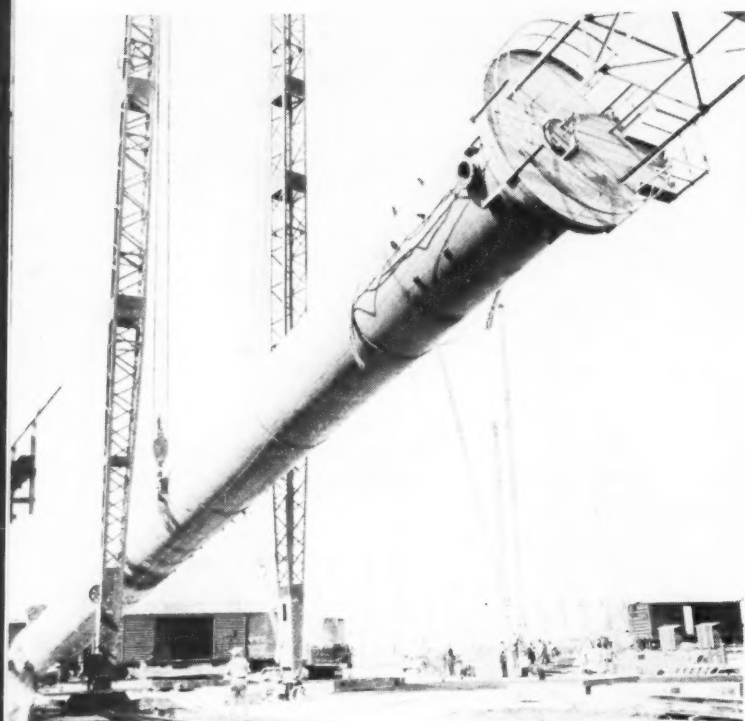


**2** FROM HORIZONTAL POSITION on ground, raising of tank begins.

stages in erection of the tank.

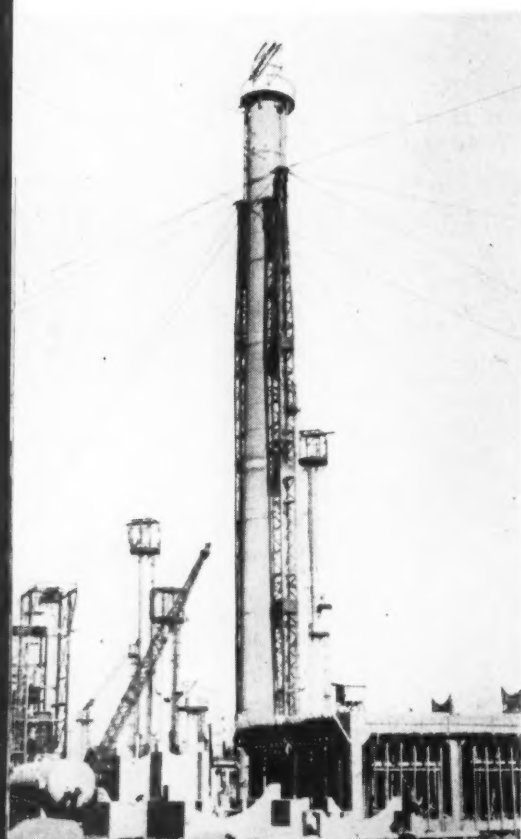
There are 70 bubble cap trays in the tank each of which must be perfectly level. For this reason the two sections of the tank had to be joined and each tray installed with extreme accuracy.

After preparations had been completed, the raising of the tank from a horizontal to a vertical position with the aid of a pair of guy derrick masts functioning as gin poles required only 40 min. The tank is self-supporting and is bolted to a specially designed concrete foundation.



**3** AS HOISTING CONTINUES base of tank (left) moves toward concrete foundation which will support it in vertical position.

**4** THREE QUARTERS UP is position reached by tank in this view (below).



**5** IN FINAL VERTICAL POSITION 10-ft. dia. tank 172 ft. high is ready for bolting to concrete base.

# LEGAL ADVENTURES

of TRACTOR CONN

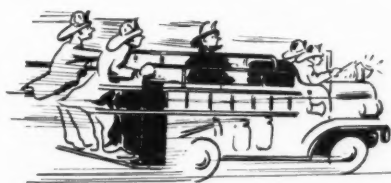


By LESLIE JOBB

No contractor ever tries to be his own dentist or his own shoemaker. It is even more dangerous for him to be his own lawyer. There are, however, some legal rules which every contractor should know, and these rules may be explained in plain English without resorting to the jargon of the law, unintelligible to most laymen.

This series of articles, dealing with the Legal Adventures of Tractor Conn, a typical contractor anywhere in the United States, explains some of these legal points in plain language for the contractor. Each one is based on an actual decision of an American Court.

## The Case of the Illinois Fire



Tractor Conn had agreed to erect a house for \$15,000. He sublet it to a subcontractor for \$13,000 and the building was burned when about half completed. The owner settled with Conn for \$7,000 for the work done.

"Now, I'm entitled to my pay for the work I actually did," the subcontractor averred and Tractor Conn pointed out some matters of minor importance in which the subcontractor had not lived up to his subcontract.

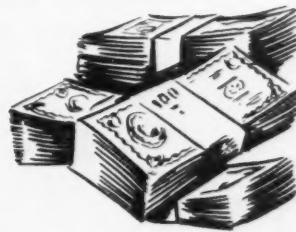
"Were these things mentioned in the settlement between you and the owner?" the subcontractor demanded and Conn was forced to admit that they were not.

"In that case, I'm entitled to my pay, for you waived any breach of my contract when you settled with the owner," the subcontractor maintained and the Illinois Courts ruled in his favor in the case of *Clark vs Busse*, 82 Ill. 515.

Tractor Conn had agreed to erect a house for \$15,000. He sublet it to a subcontractor for \$13,000 and the building was burned when about half completed. The owner settled with Conn for \$7,000 for the work done.

## The Case of the New York Waiver

Tractor Conn had agreed to erect a building for \$10,000, the work was delayed through the fault of the owner, and Conn was put to \$3,000 extra expense on account of the hold-up. Finally the building was completed and the owner handed over a stack of currency. Tractor Conn counted it and found it correct.



"\$10,000, cash money," Conn announced.

"Then if you will sign this receipt in full, we'll be square," the owner suggested.

"I'm signing no receipts and I'm going to sue you for \$3,000 damages," Tractor Conn averred.

"You're too late. You should have objected before you put your hands on the money," the owner argued. The parties went to court and the New York Courts ruled in Tractor Conn's favor on the ground that by accepting the contract price he had not waived his right to sue for damages in full. (*Weeks vs. Trinity Church*, 56 N. Y. A. D. 195, 67 N. Y. S. 670, 6 Cyc. 80).

## The Case of the Expensive Delay



Tractor Conn had agreed to erect an apartment house on a site occupied by an old building. The work was to be completed by December 1.

"How much will you take to remove the old building," the owner, inquired before the ink on the contract was

dry.

"\$3,000," Conn told him.

"Go ahead, it's a bargain," the owner agreed. Tractor Conn removed the old building and was three weeks late in finishing the new one.

"I'll have to deduct the daily penalty specified in the contract," the owner told him.

"No, when we made the new agreement about removing the old building that modified the original contract and extended the time for completion at least by the length of time it took me to remove the old building," Conn contended.

"There was no modification, for the old building was there when we signed the contract, so you must have had the preparatory work in mind at the time," the owner retorted, and the New York Courts ruled against Tractor Conn in *Shute vs Hamilton*, 3 Daly (N. Y.) 462.

**More Legal Adventures of  
Tractor Conn Next Month**



# Accounting for

FIRST OF A SERIES OF SIX ARTICLES BY

GUY M. CARSON

**AHEAD LIES WHAT APPEARS TO BE** a big construction and building boom, which means a sharp upward curve in the contracting business. Many contractors will serve their customers well, will make profits and come out with a sound business and a healthy bank account. Others, according to past experience, will go broke.

You, as a contractor, should make out well, and you will if you watch your step. But with high material costs, high wages and inexperienced help, you can go broke quicker than ever before if you are not both alert and cautious. You will have to be a good business man as well as a keen technician and operator if you are to make money during the years immediately ahead.

Does that sound depressing? It shouldn't! Maybe it means you are going to get more satisfaction

out of conducting your business than ever before. It can very well mean just that.

It does mean you are going to have to watch your business and know at all times exactly where you are, which means good bookkeeping and cost records. What good is it going to do you to figure careful and accurate bids and obtain contracts on which you *should* make money, unless your job costs come reasonably close to your estimates? You must know how you are coming out on your work and you can't guess! Don't think you're making a big profit just because you are doing a big volume of business.

Here's one fellow who was fooled. Several years ago a building contractor asked the writer for help. This client had several large buildings in various states of completion. It was his practice to complete the buildings and sell them individually, and up to that time he had made considerable money doing it.

He suddenly realized that he

was unable to tell exactly what each building cost. Yet, being something of a promoter and speculator, he had no patience with detail accounting, for in the past he had made money and to him that was all that mattered. He couldn't be sold on an adequate accounting system that would show him the cost of each job and, better still, the cost of each operation. If he had been able to see this, he might still be a prosperous contractor and builder. But, because of his theory, it was "too much trouble," he eventually went broke.

Likewise, many a man has failed to make good in a big way simply because he did not know his overhead; therefore he could not control it. Thus, of course, he did not know when overhead costs increased out of line, or even how much to add to his estimates of direct costs to cover that overhead.

No matter how big or how small the job, cost information is necessary to good business operation. Therefore, any bookkeeping sys-



**CAREFUL ESTIMATING** is basis of every successful contract job, but careful accounting is just as important if contractor is to stay in business, especially in uncertain times just ahead.

# or Contractors...1

BY GUY M. CARSON, COMPTROLLER, TALLMAN, ROBBINS & CO., CHICAGO, ILL.

tem to be of assistance to the contractor must furnish all the cost information necessary for the contractor to tell as he goes along how he is coming out on each job not only whether he is making money or losing money, but on what operations a profit or loss is being sustained. Upon the completion of each job, the contractor must be able to tell how much actual, or net, profit was made on the entire project.

Maybe you have a good accounting system. Perhaps it provides all of the things which a good system should. If so, fine!

If, however, you have any doubts whatever about the adequacy of your record keeping, it is well to know there is now available a strictly "tailor-made" system designed especially for contractors.

In addition to the previously mentioned essentials, this system gives in simplified form all the information needed to figure profits, percentage of overhead, expense, income tax, Old Age Benefit or Social Security Tax, State Unemployment Compensation Tax and Federal Unemployment Compensation Tax.

## Detailed Instructions Given

Instructions and typical entries are shown to illustrate and explain in detail each operation, and a tax calendar also is supplied which gives a complete tax schedule showing when taxes are due, how and on what basis they are computed, and to whom payable. It includes a sound basis for computing income tax. It also provides a method whereby the contractor may improve his methods of operation by knowing his strong points and his weaknesses; and the use of money-saving ideas which the contractor may develop on jobs.

The "simple" system may be

kept by the contractor himself, or by a member of his family, where the individual handles all his own money and pays his own bills. It consists of Cash Receipts, Cash Paid Out, Job Record and Payroll—all housed in one binder.

We advise the larger operator who cannot handle all his own cash and pay his own bills to employ an accountant or bookkeeper to keep the complete double entry system. The same system is used. The addition of a General Ledger and a Journal makes it a complete double entry set of books.

## What Accounts to Keep

Years ago, before Income and Social Security Taxes, and before the days of high costs and keen competition, accounting records were kept largely for the purpose of preventing someone from beating the business man out of money. In these days of more complex business operations, that is per-



**DRIVING** final pin marks end of your bridge job, but has it been a profitable contract? Only a good accounting system can tell where and why you have lost or made money.



**BUILDING CONSTRUCTION** involves a multitude of details. Without a sound accounting system, building contractor is hopelessly lost in keeping track of cost of these details.



**BEAUTIFUL TO WATCH** is a modern concrete paving job, but how much is it costing the contractor. Without proper accounting and bookkeeping, even he doesn't know.

haps one of the least important reasons for keeping bookkeeping records.

Doing business under present day conditions, the boss can figure himself out of more money one way or another than most of his customers or employees can.

Today there are five principal

reasons for keeping accounting records:

- (1) To keep a record of your accounts—how much is due you—how much is due others, etc.
- (2) Uncle Sam and his taxes.
- (3) Know your costs—how you

are coming out on individual jobs and operations.

(4) Know your percentage of overhead expenses.

(5) Business management.

Taking each of the above in turn:

(1) It is important to know who owes you money, and how much, and how much money you owe, and to whom, and to keep a record of your assets. That's fundamental.

(2) Uncle Sam says you must pay Income Tax, Old Age Benefit, Social Security and other taxes. This may not be the most important reason for keeping good accounting records, but it certainly is a very necessary reason for keeping them. In fact, the law says you **MUST**.

(3) At the end of the year, perhaps you know that you have made money because you are worth more than you were at the beginning of the year, and that's a pretty good way of telling whether you have made a profit. But do you know your costs? Do you know on which jobs you made your profit?

If you are the type of contractor who has several jobs running at one time, you may be losing on

(Continued on page 188)



**SCRAPERS, BULLDOZERS, DRAGLINES**, all on one operation. How much does each item of equipment cost to operate? Which is most effective and economical for work in hand? A good job accounting system will give contractor the answers.

# Welded Tanks Supported by Sloping Tubular Columns

ARC WELDING was applied to the construction of two elevated water tanks notable for their streamlined appearance and practicability in serving the water distribution system of the Northern Indiana Public Service Co. in two Indiana municipalities, Warsaw and Winona Lake. The tank erected at Warsaw, illustrated herewith, is 85 ft. to bottom and the Winona Lake installation is 75 ft.

Both of these tanks are of all-welded design, the various cylindrical sections of each being weld-fabricated as shop jobs in sections as large as were convenient to ship. The column splices and tank assembly joints were made by electric arc methods at their respective job sites.

## Tank Dimensions

The  $\frac{1}{4}$ - to 1-in. thick shell of the 250,000-gal. tank at Warsaw is 40 ft. in dia. and the depth of the water in the tank is 31 ft. 5 in. The four supporting columns are  $4\frac{1}{2}$  ft. in dia. and the central riser is 4 ft. in dia. The 150,000-gal. tank at Winona Lake has a 34-ft. dia. shell and is of similar design.

There are no outside ladders on these structures. Access to the balcony, roof and inside of the tanks is provided by rungs welded inside one of the sloping columns on each tank and a vertical cylinder or access tube extending from the top of this column, through the water in the tank, to the roof man-hole. This is a desirable feature as the sloping columns are easier to climb than a ladder on a vertical column.

All plate sections are rolled, the roof and bottom plates being pressed to shape by a dishing machine. All joints in material more

than  $\frac{1}{4}$  in. in thickness are welded on both sides with Lincoln equipment. The plate edges are beveled at 45 deg. (Fig. 2) to effect a double vee. On these joints there is a gap of  $\frac{5}{32}$  in. between the plates. On butt joints in  $\frac{1}{4}$ -in. thick material no edge preparation is necessary (Fig. 3) but a  $\frac{1}{8}$ -in. gap is made at the joint. Weld penetration is 100 percent on all joints except circumferential seams between the first and second ring shell, and between the roof sections and second ring shell of the structure.

Rails, balcony and flooring (Fig. 4) were also of all-welded construction. All welding was done with  $\frac{5}{32}$ - and  $\frac{3}{16}$ -in. mild steel electrode, (A.W.S. E-6010).

The tanks were designed by G. T. Horton, and development of the fabricating and erecting of the structures was done by the research department of the Chicago Bridge & Iron Co.



Fig. 1 . . . FOUR SLOPING TUBULAR COLUMNS support 250,000-gal. tank 40 ft. in dia. at Warsaw, Ind.

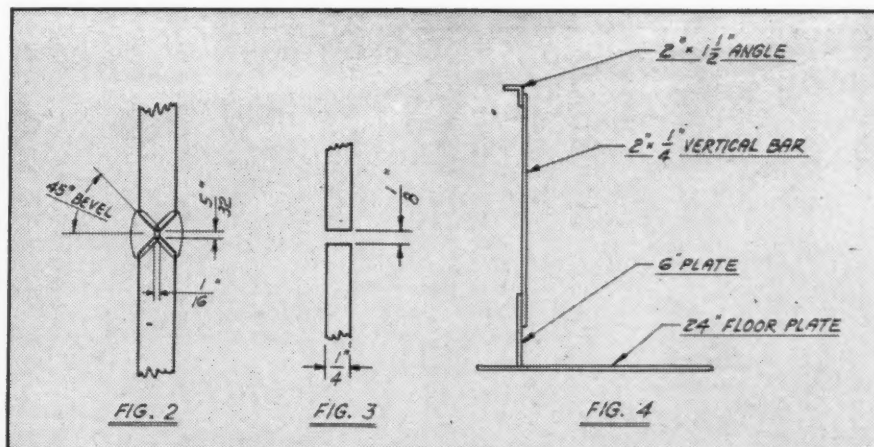


Fig. 2 . . . PLATES more than  $\frac{1}{4}$  in. thick are prepared with 45-deg. bevel and gap of  $\frac{5}{32}$  in. at welded joint. Fig. 3 . . . NO EDGE PREPARATION is used on plates  $\frac{1}{4}$  in. or less in thickness at welded butt joints. Fig. 4 . . . BALCONY RAILING and floor atop columns is of welded construction.



# Modern Tunneling

## ON MOSCOW'S FOURTH SUBWAY

IRON-LINED TUBES enter huge junction chamber near Paveletskaya station on Moscow's fourth subway section. Women here are pushing muck dump car though most of haulage system on new link is mechanized.

RUSSIAN ENGINEERS have adopted fully mechanized and modern tunneling methods in driving the fourth section of the Moscow subway. The mechanized operations include use of a hydraulic-drive shield, a detached electric-operated iron liner erector, pneumatic

clay spades, automatic-feed drifter drills, air-driven mine type mucking machines, and electric haulage and hoisting. Mechanical haulage extends to surface disposal of muck which is carted away from shaft headframes by streetcar work trains.

The three previous Moscow subway lines, completed in the decade prior to the war, are crosstown lines intersecting at a common midpoint, radiating outward like six spokes of a wheel. The new fourth section, about 10 mi. long, is a belt route circling the central part of the city, tapping existing lines at 6 of the 12 stations on the new line and connecting all of the city's railroad terminals. All in tunnel, it lies below the other routes, which in some places are 130 ft. deep. Various types of ground from soft subaqueous silt to hard rock are encountered in the tunnel driving.

Reports from Moscow state that the fourth section is being built



SIMILAR to those used on New York subways is shield driving Moscow's new subway under Yauza River. Shield, divided into nine working compartments, is equipped with 24 hydraulic jacks for shoving against iron lining.



**WOMEN OPERATE** pneumatic clay spades on soft ground section of subway. Hard hats show Soviets believe in job safety.



**GLOBE VALVES** control operation of individual jacks in shield, while master valves control whole hydraulic system for shoving and retracting jacks. Note unusual swinging bulkheads in shield pockets.

by the same people who drove the first three sections, including many persons who have stepped up into positions of high authority. Samodurov, for example, came to Metro in 1933 as a young engineer and is now a Director-General of Traction and Construction of the Second Rank, and as Chief of the Metro Underground Railway Building Trust is in charge of the work. Many employees, both labor and supervisory, are women. One woman, Fyodorva, a former rank-and-file worker, is now a construction engineer and shift superintendent, and has been elected a deputy to the Supreme Soviet of USSR.

➔  
**AUTOMATIC - FEED DRIFTER**, mounted on cross bar, drills into one of solid rock sections of subway. Drift is shored with square set steel timbering and wood lagging.

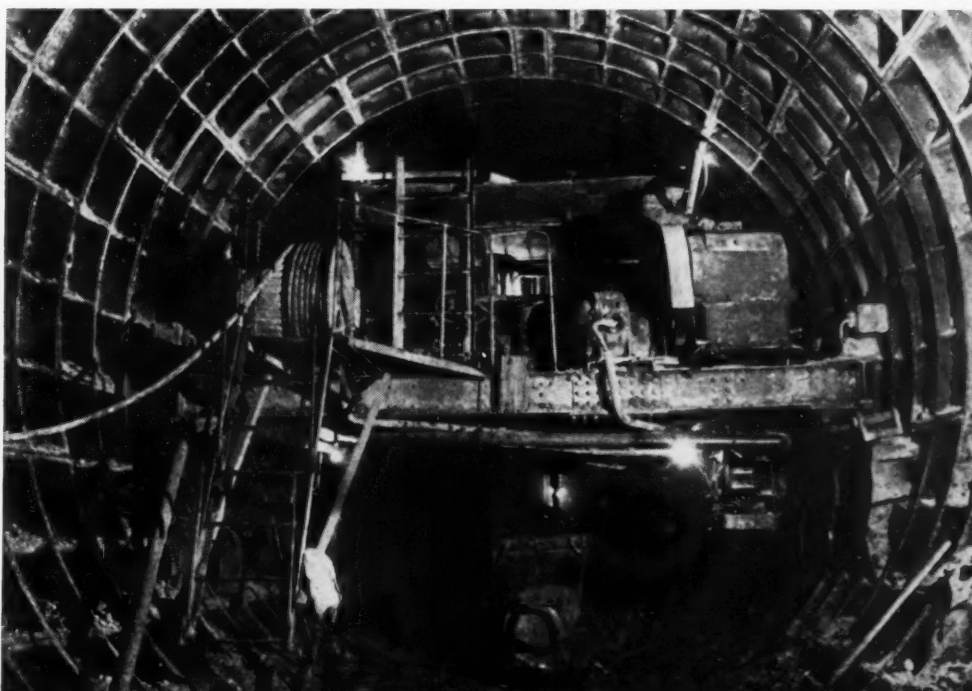


All Pictures from Sovfoto

**PNEUMATIC DRIVE** mucking machine (below) of mine overthrow type loads cars in drift through rock section. Women operate much of tunnel driving equipment.



**ERECTION OF IRON LINING** (below) is by separate erector arm, detached from shield and operating on temporary brackets set in lining. Erector is electric powered through supply cable carried on reel. This is rear view of erector rig.



# HOW

## *They Did It*

### CONSTRUCTION DETAILS

*For  
Superintendents and Foremen*



**CONVERTED ARMY JEEP** digs ditch. Called jeep-a-trench by **FRED J. SCHMIDT** (in white shirt), Auburn, Neb., manufacturer, it will cut 4- to 5-in. trench 6 ft. deep at rate of 300 ft. per hr. Device consists of narrow bucket chain and screw conveyor for casting spoil to side of trench.

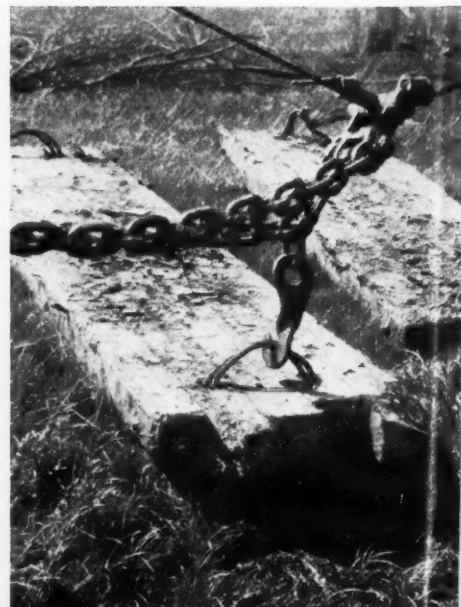
Wide World Photo



**BACKHOE** of Byers shovel removes thousands of small stumps from base of new levee around Kansas City municipal airport. Stumps are remnants of old river front forest growth embedded in sand fill accumulated by bank protection dikes. Contractors, Geo. Bennett Construction Co. and Storms-Frew Construction Co., Kansas City, Mo., found backhoe grubbing method cheapest way to meet Army Engineer specifications for stump removal.

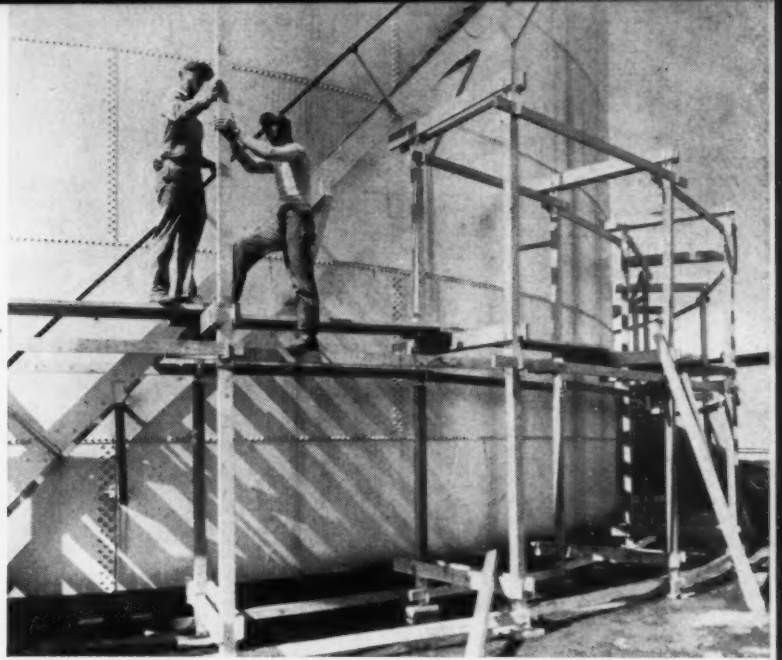
Page 110

**SELF-OPERATING SNATCH HOOK** (below) engages wire rope loop on dragline mats for moving mats ahead. Walraven Bros., Bay City, Mich., equips all of its machines on drainage ditch work with special flat steel hook attached to drag chains. Operator can engage or release hook by maneuvering dragline bucket, eliminating need for pitman to help handle mats.



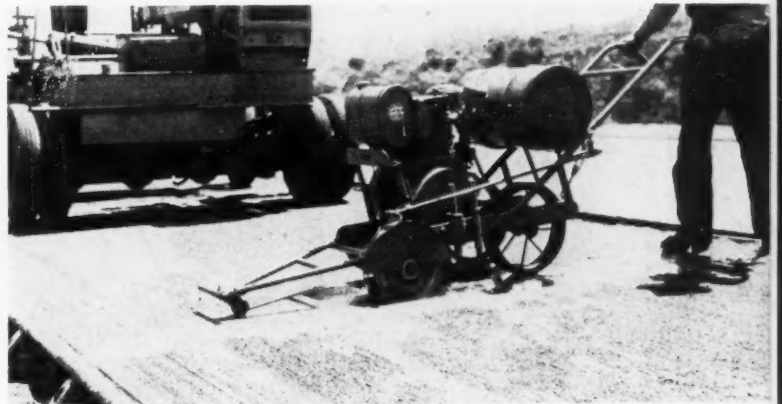


**HOPPER AND CANVAS SPOUT** hanging from elevating boom of Rex 34-E double-drum paver place concrete in exact spot desired for spillway footings at Canton Dam in western Oklahoma. Hopper, attached by cables to crossbeam on top of boom, has sufficient clearance to permit dumping of paver bucket. Contractors on this Army Engineer project are C. F. Lytle Co., Sioux City, Iowa, and Amis Construction Co., Oklahoma City.

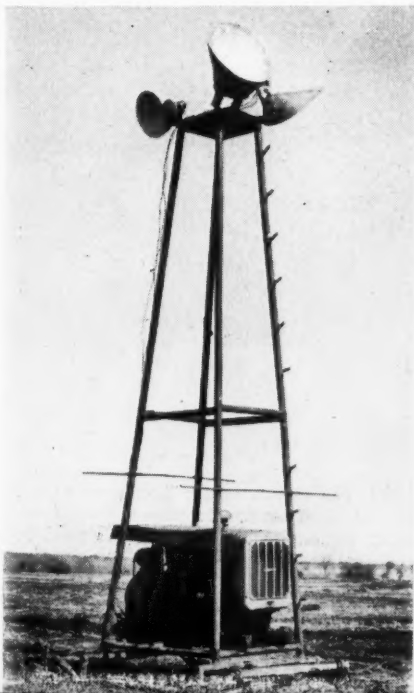


**BRACKETS CLAMPED** to posts speed erection of scaffold for Gunite oil tanks in Portland, Ore. Knife-grip brackets, developed by Andrews Machinery Co., Portland, require no nails, so scaffold members can be reused many times. Gunite facing of tanks is being done for Shell Oil Co. by Donald Drake Co., contractors of Portland, Oregon.

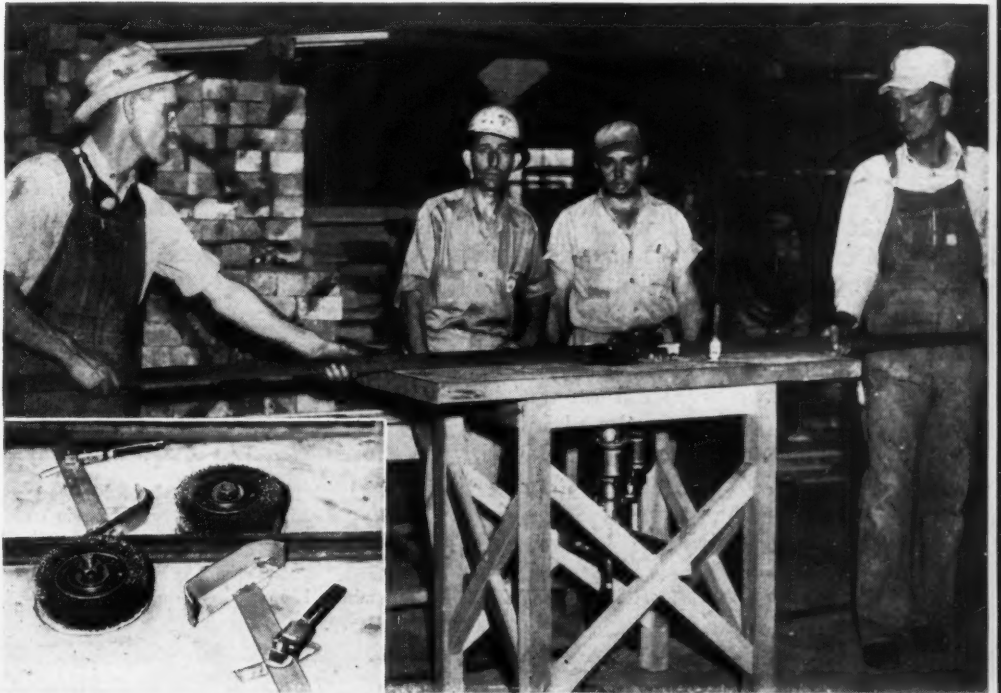
**TRANSVERSE JOINT CUTTER**, guided by hand, scores planes of weakness at 15-ft. intervals to control cracks in concrete pavement under construction for California Division of Highways by N. M. Ball Sons, of Los Angeles. Cutter is equipped with rotary disk faced with diamond chips and powered by small gasoline engine. Disk revolving at high speed is cooled by water.



**ALL-WELDED PIPE TOWER** (below), mounted on pipe skids and served by Caterpillar diesel-driven electric generator, floodlights night work for Markham & Brown-Kearney, Crume & Co., contractors, of Austin, Tex., on construction of Dallas airport.



**SHOP-MADE SCALER**, (below), operated by two men, can remove rust from 11,000 lin. ft. of bars in 8-hr. day. Built by workers at Ingalls Shipbuilding Corp., Pascagoula, Miss., it consists of metal-covered work bench, two pneumatic motors, two steel brushes, (inset) several clamps, two hand-turned handles and two tailor-made guides. Metal shapes pass quickly through double brushes and emerge free of rust and scale.



# TALL TANK

## Moved 237 Ft. on Rollers Over Weekend



**ELEVATED WATER TANK** 120 ft. high is moved 237 ft. in three days to make way for new railroad siding. Cable guys to leg tops are tightened at night to prevent unballasted 35-ton structure from overturning in wind.

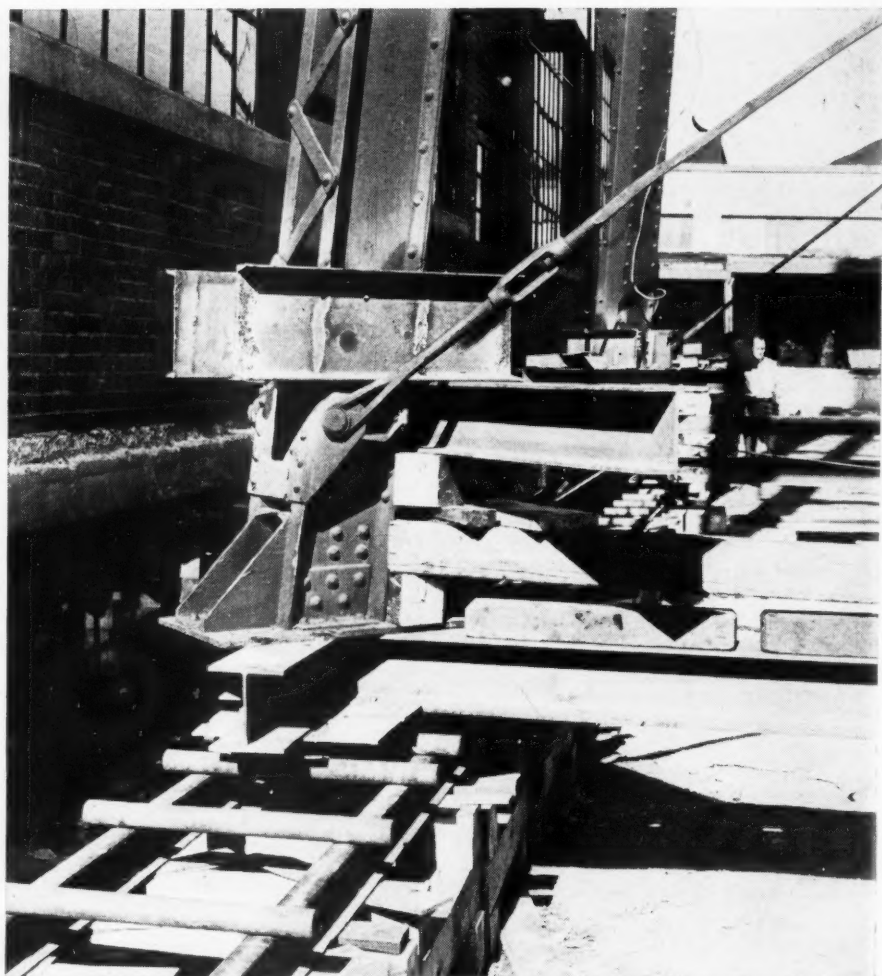
A **SPEEDY JOB** of moving a 75,000-gal. elevated water tank during a weekend held service interruptions to a minimum during plant alterations at the McCall Publishing Co. in Dayton, Ohio. Anchor bolts of the 120-ft. high tank tower were cut on a Friday and the tank was placed in service at its new location on Monday after a 237-ft. trip involving two 90-deg. changes in direction.

Prior to jacking, timber struts

were placed between tower legs to keep them aligned, and two short lengths of 12-in. channel were welded to each leg. Beams and jacks placed under the channels raised the 35-ton tower, after which 8-in. H-sections were welded longitudinally and transversely beneath the legs to permit the tank to be rolled in either direction. The tower was moved on steel pin rollers placed on a double line of rails

on timber blocking beneath each bent. Upon reaching its final location, the tower was again jacked up, the H-beams were removed, and the tank was lowered into position on new footings.

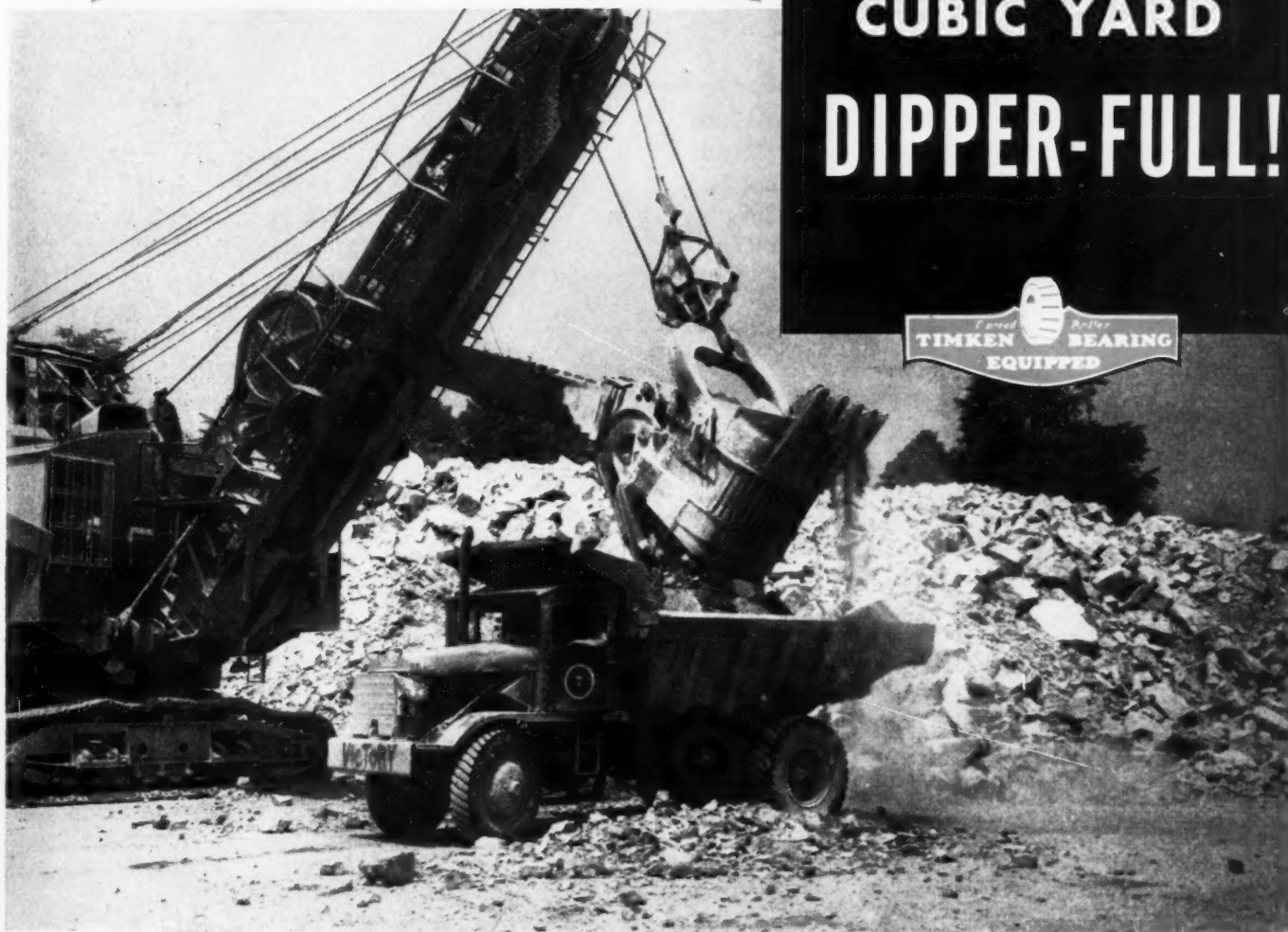
The three-day moving job was done by the E. W. LaPlante Co., Indianapolis, Ind., under the supervision of K. F. Adair, vice-president and general manager of the organization.



**STEEL ROLLERS** on pairs of blocked rails carry 75,000-gal. water tower to new location. H-sections under base plates are welded at right angles to permit 90-deg. shift in direction of rolling. Note jacking beam under channel stubs welded to tower leg.

# BANG!

IN GOES  
ANOTHER FIVE  
CUBIC YARD  
DIPPER-FULL!



Photograph courtesy The Euclid Road Machinery Co., Cleveland, Ohio and Bessemer Limestone & Cement Co., Bessemer, Pa.

This Euclid Model F Rear Dump Truck looks small alongside the big 5 cubic yard Marion Electric Shovel, but it can hold and haul a 15 ton load with the greatest of ease! The manufacturer has seen to that by sound design, sturdy construction and the use of Timken Tapered Roller Bearings on all axles. Incidentally, the Marion Shovel, too, is equipped with Timken Bearings at important hard service points.

Because Timken Roller Bearings are *more* than anti-friction bearings; because they also can carry radial, thrust and combined loads;

because they are tremendously shock-resistant; and because they hold moving parts in permanent alignment they are definite and far-reaching factors of increased strength, endurance, dependability and extended life in all kinds of equipment.

It will pay you to have Timken Bearings in the equipment you buy or build; and make sure the trade-mark "TIMKEN" is stamped on the cup and cone of every bearing you use. The Timken Roller Bearing Company, Canton 6, Ohio.

**TIMKEN**  
TRADE-MARK REG. U. S. PAT. OFF.  
**TAPERED ROLLER BEARINGS**

# LABOR DAY • 1946

## —Time for wise union leadership

**L**ABOR DAY, 1946, finds one hopeful element in the relations between American management and labor which was not there on Labor Day, 1945. It comes in recent expressions by a number of national leaders of organized labor that increased "real" wages depend upon *increased productivity*, i.e. increased output per man-hour. Increased money wages which are promptly offset by higher prices do nobody any good.

If these expressions, *which still remain to be substantiated by practical performance*, come to be accepted by the rank and file of labor in each community, Labor Day, 1946, can usher in a period of great and perhaps unprecedented improvement in the economic wellbeing of wage earners—as well as the wellbeing of the country at large. If, on the contrary, they remain merely window dressing and there is a continuation of the post V-J Day process of increasing wages and then prices, the outcome can only be the bursting of an inflationary bubble, with attendant suffering for workers and the community generally.

Competition requires management to bear down heavily on increased labor productivity as a prelude to wage increases. Management, however, has rarely made a more forthright statement on the importance of increasing labor productivity than that contained in a recent issue of **LABOR'S MONTHLY SURVEY**, an official publication of the American Federation of Labor.

William Green, the Federation president, led off with a "message to American workers." He remarked, "Our major need is increased volume of production." Observing that "wage increases this spring have been paid for by raising prices," the

survey itself goes on to say that "Today America's ability to raise wages without increasing prices and living costs depends on increasing productivity in civilian industries . . . Here is the challenge to free labor and free enterprise today: *Cooperate to increase productivity and raise living standards without strikes.*" (Italics supplied.)

The importance of increasing production was also recently stressed by Walter Reuther, President of the United Automobile Workers, C.I.O., who remarked that his union "is just as eager as management to get the (automobile) industry into maximum production." In taking this general line he was in accord with the position of Philip Murray, head of the C.I.O., who in a book,

"Organized Labor and Production" written with Morris L. Cooke, remarks that, "The modern labor leader also realizes that to receive a good day's pay a man must do a good day's work and that *increased productivity has been the vital factor in the country's industrial supremacy and its relatively high wage scale.*" (Italics supplied.)

In citing increased productivity as the key to increased "real" wages these labor leaders—and management—have the historical record entirely on

### SPOT CHECK ON LABOR OUTPUT

In the absence of reliable general statistics on what has happened to productivity of labor since V-J Day (because of strikes and reconversion complications) the McGraw-Hill Publishing Company asked the executives of a cross section of American industry to report their own impressions. The questions asked and summaries of the replies, which varied markedly from industry to industry and plant to plant, follow.

Question No. 1. How well have workers performed since V-J Day as compared to their pre-war effort?

Answer. Worker effort has been below pre-war. There are exceptions, particularly among older and more experienced workers; and there are quite a few signs of improvement.

Question No. 2. How much headway have you been able to make since V-J Day in improving labor productivity by better equipment and organization?

Answer. Some headway is generally being made, but it has been greatly retarded by inability to get new equipment and, in some cases, by lack of labor cooperation in improvements in organization.

Question No. 3. How much improvement in equipment and organization is to be anticipated in your business over the next year?

Answer. Marked improvement in productivity (in a few cases as much as 20 per cent) can generally be made if there is sustained production and full cooperation between labor and management.

their side. In the 40 years prior to the outbreak of World War II output per man-hour for the country as a whole was approximately doubled. Over the same period the "real" hourly earnings of industrial workers were also approximately doubled. There were, of course, great variations in the increase of output per man-hour from one line of activity to another. Also, there were periods when increases in "real" wage rates lagged behind increases in productivity. But for the 40 year period as a whole and the economy as a whole there is no mistaking the fact that the route to increased "real" wage rates was increased productivity.

Three economic factors played major roles in this doubling of production per man-hour which has made America the industrial marvel of the modern world. One was the skill and diligence of American workers. A second was the skill and diligence of American management in organizing production. A third was the improvement of machinery and the increased application of power to it.

### Wartime Record

During World War II this sustained increase in the productivity of labor in *civilian* manufacturing industries, which had averaged about 3 per cent a year, was brought to an abrupt halt. Much of the most efficient segment of the nation's labor force went to war or war industry. Also, civilian industry was starved for new equipment while we equipped our arsenals. The result was that the productivity of labor in those civilian manufacturing industries for which the government keeps records actually declined throughout most of the war. By 1945 it was no higher than in 1941, whereas, if it had maintained the long run average, it would have been about 12 per cent higher. In the meantime, however, average hourly wages in these civilian industries had increased about 40 per cent.

In *war* industry, which started from low levels of production at strange tasks, there were substantial increases in output per man-hour. Many of these increases involved new processes, improved techniques, and better machines which can be adapted over a period of time to the improvement of productivity of labor in civilian industry.

Since V-J Day, however, labor, led on by a misguided government, has had its sights on higher money wages instead of improving productivity which would have laid the foundation for increased "real" wages. Consequently, debilitating industrial strife ended in a round of wage increases which, in


the absence of increased productivity, is being washed out by higher prices.

### To Keep Production Rolling

However, as indicated by the summary of a McGraw-Hill sampling of the current experience of industry in increasing output per man-hour, which appears in the center of the page, there is hope that the situation ahead can be improved. After agonizing delays because of work stoppages, material shortages, and reconversion complications, industrial production is beginning to roll again. Allowed to roll it will not be long before it will be making those advances in productivity which are the only true basis for increased "real" wages.

If the process of keeping American industry rolling to new highs of productivity is to be resumed, management must see that the past practice of translating increased output per man-hour into increased "real" wages is not only sustained but wherever possible accelerated. For its part organized labor must abandon its manifold feather bedding rules and other production-restricting practices which afflict considerable segments of American industry. Further it must give incentive systems of pay, honestly conceived and honestly administered, a fair break. *Management and labor and government and the community at large must collaborate in removing that specter of working one's self out of a job which has been one of the greatest causes of restriction of output.*

The current emphasis by leaders of organized labor on the economic truth that increased output per man-hour is the only road to increased "real" wages is important. The next step is to see that recognition of this truth seeps into the rank and file of labor and industry and becomes the basis of a program of action at the local level. If it does, and quickly, Labor Day, 1946, may mark a tremendous turning point toward sustained prosperity not only for labor but the community at large. If it does not, union leadership will fail in its responsibility and must answer to the American people for the consequences of such a failure.



President McGraw-Hill Publishing Company, Inc.

THIS IS THE 50TH OF A SERIES

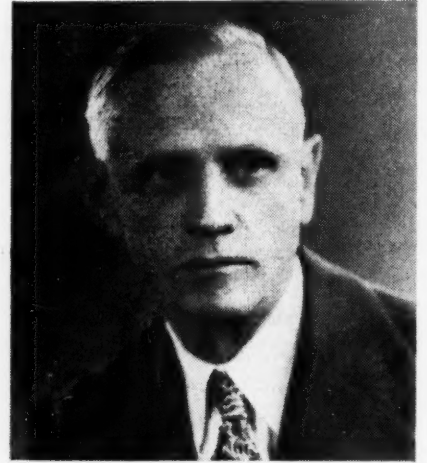
# Present and Accounted For...A PAGE OF PERSONALITIES



WESTERN SOCIETY OF ENGINEERS has elected as president **TITUS G. LECLAIR**, chief staff engineer, Commonwealth Edison Co., Chicago, Ill.



ELECTED PRESIDENT of Western Association of State Highway Officials at recent convention in Salt Lake City, Utah, is **A. F. WINKLER**, who has been chairman of Montana State Highway Commission for last 6 years.



NAMED PRESIDENT of Associated General Contractors of Missouri is **OTTO W. KNUTSON**, of Kansas City. He has been engaged in highway work since 1926.



←  
FIRST BRICK for new office addition of **J. A. Jones Construction Co.**, Charlotte, N. C., is laid by **J. A. JONES**, company president.

→  
PRELIMINARY ORGANIZATION of Navy's Civil Engineer Corps Reserve Component is being directed by **Capt. KEN C. WEIDNER**, with headquarters at Arlington, Va. Objective is to maintain active interest in naval shore construction by 10,000 officers who directed Seabees during war.



Page 113

NEW PRESIDENT of American Bridge Co. and Virginia Bridge Co. is **FRANK K. McDANIEL** (left), who started work 42 years ago as shopman's helper at company's Ambridge, Pa., plant. Succeeding him as vice-president in charge of manufacturing operations of American Bridge is **AUSTIN J. PADDOCK** (center), whose place as Gary, Ind., plant manager is being taken by **WILLIAM A. THIEL** (right).



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## It's the COMBINATION that counts

**"Peak" Diesel Performance is possible . . . but only if BOTH the fuel and the lubricant work for cleaner operation.**

WHEN YOU BUY SHELL "DIESELINE," you get a fuel that is 100 per cent refined. Predetermined fractions of selected distillates are carefully blended to exacting specifications which have proved satisfactory in actual operation. Impurities and undesirable fractions are left behind.

Furthermore, the viscosity of Shell "DIESELINE" is so controlled that you get an oil heavy enough to lubricate pumps and injectors, but not too heavy for proper atomization by injector nozzles.

Then, to make doubly sure Shell "DIESELINE" burns cleanly, Shell delivers it in clean tank cars or trucks, so the fuel reaches you in prime condition for quick, clean combustion.



**BUT THAT IS ONLY HALF THE STORY OF CLEANER DIESEL OPERATION**

Keeping the engine from sludging is a job for the lube oil . . . and Shell Talpex Oil is doubly protected for this task.

First, Shell takes out, during the refining of Talpex, all components that readily oxidize. Then refined Talpex is further protected with an antioxidant and a detergent. The result is a lubricant that keeps rings, valves and ports cleaner . . . makes your engine last longer.

The Shell Lubrication Engineer will give you sound advice about the fuels and lubricants for any type of Diesel, whether slow-, medium-, or high-speed. Shell Oil Company, Incorporated, 50 West 50th St., N. Y. 20, N. Y.; or 100 Bush St., San Francisco 6, Calif.

# SHELL DIESEL FUELS AND LUBRICANTS





**LIGHTHOUSE** is transplanted to solve housing problem of Burlington, Ore., family. Employing huge crane mounted on barge, Marine Contractors, Inc., of Portland, lifts 51-year-old house from piling at junction of Columbia and Willamette Rivers.

Press Assn. Photo

# JOB

## oddities

Page 118

**BOON TO GOLFING DUFFERS** is this Caterpillar diesel motor grader (below) which is being used to eliminate sand traps guarding greens of Newman golf course, Bradley Park, Peoria, Ill. Owned by Peoria Park District, grader, equipped with adjustable side blade, is used in winter for snow removal.



**UP FROM CALYX DRILL HOLE** on axis of \$25,000,000 Pine Flat Dam near Fresno, Calif., comes **CLAIRE P. HOLDREDGE**, geologist for U. S. Army Engineers. Calyx drill bores its way through solid rock by rolling steel shot or pellets under cutting edge. Resulting holes permit observation of earth structure's foundation.

**STRAW-INSULATED HOUSES** (below) are built experimentally at Stockton, Calif., by Chester Gianelli and Wallace Thompson. Over 6x6-in. welded steel mesh is applied 3 in. of Gunite. Roof and floor are reinforced concrete with supporting concrete beams. Construction of four five-room structures, to cost \$25,000, has been halted by lack of Gunite equipment.





*Administration Building, McLaughlin Field, Hot Springs, Arkansas. Architects, Erhart, Eichenbaum and Rauch, Little Rock; contractors, Peterson & McFadyen, Little Rock; ready-mixed concrete furnished by C. J. Horner Co., Hot Springs.*

## FOR THIS HEART OF AN AIRPORT

Better Concrete . . . At No Extra Cost

with Duraplastic Air-Entraining Cement

INTO THIS modern structure went 1,000 cubic yards of ready-mixed concrete made with Atlas Duraplastic. The characteristics of this air-entraining portland cement were reported as follows:

1. **Less water was required to make a workable mix.**
2. **Bleeding and segregation were greatly reduced.**
3. **Less vibration was required for proper placement.**
4. **Surfaces were free from "honeycomb" and sand streaks.**

Atlas Duraplastic cement complies with ASTM specifications. It provides the proper amount of entrained air by intergrinding with the cement the precise amount of air-entraining material needed for satisfactory field performance. It sells at the same price as regular cement. For further information, write to Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

**OFFICES:** New York, Chicago, Philadelphia, Boston, Albany, Pittsburgh, Cleveland, Dayton, Minneapolis, Duluth, St. Louis, Kansas City, Des Moines, Birmingham, Waco.

CM-D-36

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TRADE MARK REG.  
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AIR-ENTRAINING PORTLAND CEMENT

*Makes Better Concrete at No Extra Cost*

U. S. STEEL RADIO SHOW—Sunday Evenings—Consult local newspaper for time and station



# CONSTRUCTION EQUIPMENT NEWS

## SEPTEMBER 1946 REVIEW of Construction Machinery and Materials



**VARIABLE WEIGHT TANDEM ROLLER** is 10 ft. 4 in. long, 4 ft. wide, 5 ft. 7 in. high, with 6 ft. 8 in. wheelbase and 10 in. ground clearance under frame. Its 3-ton weight can be increased to 4 tons by addition of water ballast. Engine is V-type, four-cylinder, air-cooled and

gasoline-driven, with two forward and two reverse speeds of 2.6 and 4 mph. Steering and compression rolls are equipped with rust-resisting sprinkler pipes, gravity-fed from large water supply tank. Clear operator vision is provided.—Huber Mfg. Co., Marion, Ohio.



**HEAVY-DUTY SHOVEL**—Type 11-M 3½- to 4-cu. yd. shovel is quickly convertible to dragline, clam-shell or crane service. It is of all-welded construction with balance in design providing for low center

of gravity, making it stable under all digging conditions. Variable crawler widths and lengths are offered. Upper machinery deck features simplicity and accessibility. Two main shafts mounted in anti-

friction bearings on upper deck provide direct line of power application. Control lever pressure is held to 12-lb. maximum. Fully compensating type valves give operator constant "feel" of load and enable him to apply or withdraw power gradually or quickly. Shovel boom is of all-welded, full-box section construction with rounded edges for added strength and has widespread base. Boom point sheaves are extra large and sheave bearings unusually wide. Shipper shaft pinions are double shrouded. Dipper handle members are of all-welded construction with welded racking and handle is connected to dipper by wide bearing bosses. Gantry, designed for quick knockdown for rail shipment, can be lowered to cab roof level by paying out boom hoist line. For crane or pile driver service, unit is equipped with heavy-duty, box section type boom with steel angles and pipe-section bracing. Boom point section is of gooseneck design to permit minimum radius operation. Independent live boom hoist can be supplied for crane service. Machine is diesel powered.—Marion Power Shovel Co., Marion, Ohio.

**SPIRAL TUBING** — Ready-made, inexpensive concrete forms, mine ventilating shafts and portable irrigation systems are among applications of new lightweight spiral tubing. One man can carry 60 ft. in 20-ft. lengths and lay several thousand feet per day. Tubing is spirally



formed from metal strip with edges joined in continuous four-ply lock-seam. Tests show that seams hold at pull of 2,135 lb. In tests, 2-ft. section with .030 wall thickness, stood on end, supported more than a ton without measurable distortion. Diameters available range from 2 to 8 in. in any length that can be shipped. — Pratt Industries, Inc., Frankfort, N. Y.

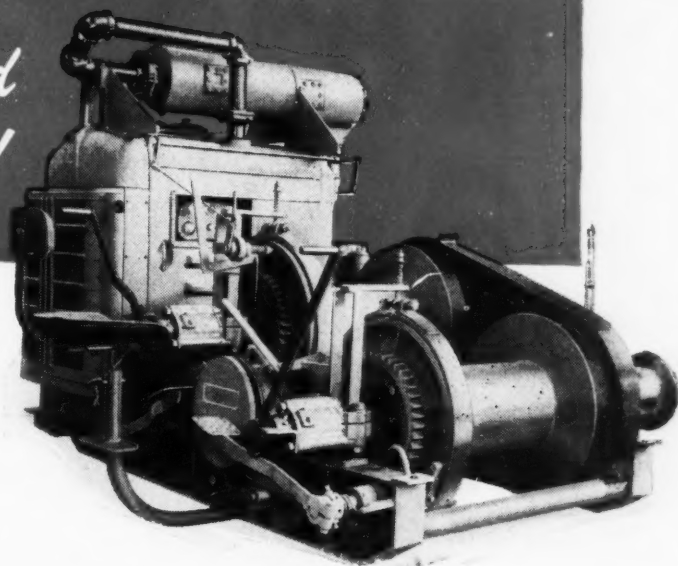
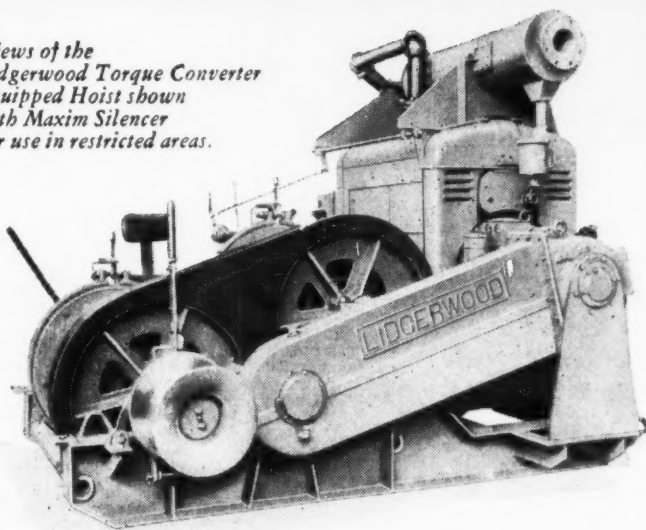
**SCAFFOLD BRACKETS**—Scaffolding for various types of building work may be quickly erected without injury to lumber with aid of new knife-grip scaffold bracket. Using 4x4 upright and 2x4s and 2x6s for horizontal members, scaffold is held together by brackets and may be made more rigid, if necessary, with steel corner braces. Scaffolds made in this manner have withstood 12-ton test. — Andrews Machinery, 404 N. W. Broadway, Portland, Ore.

# the NEW LIDGERWOOD

## Torque Converter Equipped Hoist

*...Lifts heavy loads and "floats" them into place!*

Views of the Lidgerwood Torque Converter Equipped Hoist shown with Maxim Silencer for use in restricted areas.



### Principal Features:

- 100 H.P. Diesel Hoist
- Rating 10,000 lb. line pull
- At 210 feet per minute
- All Steel Construction
- Anti-Friction Bearings
- Grouped Levers at Operator's Seat

Here's a new and advanced type hoist that makes light work of many heavy load lifting tasks for industry! It is especially suitable for setting steel in buildings, on bridges, or on many other construction and industrial jobs. Its remarkable flexibility and responsive speed literally "floats" loads into place.

The simplicity of this Lidgerwood Torque Converter Equipped Hoist makes light work of operation, too. For it offers 100% speed and load control by a single lever.

Powered by a husky Diesel or Gasoline engine that cannot stall when under load, this hoist gives you all the smooth, flexible control you've obtained in the past with steam hoists—with the important added advantages of greater economy and lighter weight.

Designed, built and tested by Lidgerwood, this compact hoist is another example of modern design that stems from 72 years of leadership in manufacturing hoisting equipment.

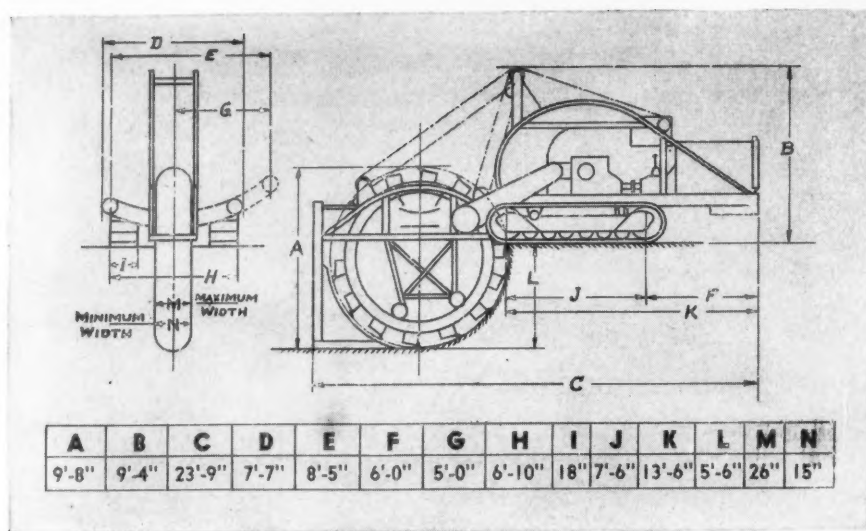
Let this better hoist put your heavy loads on the spot. You may order it built in sizes from 75 H.P. to 150 H.P. or larger.

## LIDGERWOOD

ESTABLISHED 1873

*Manufacturing Company*

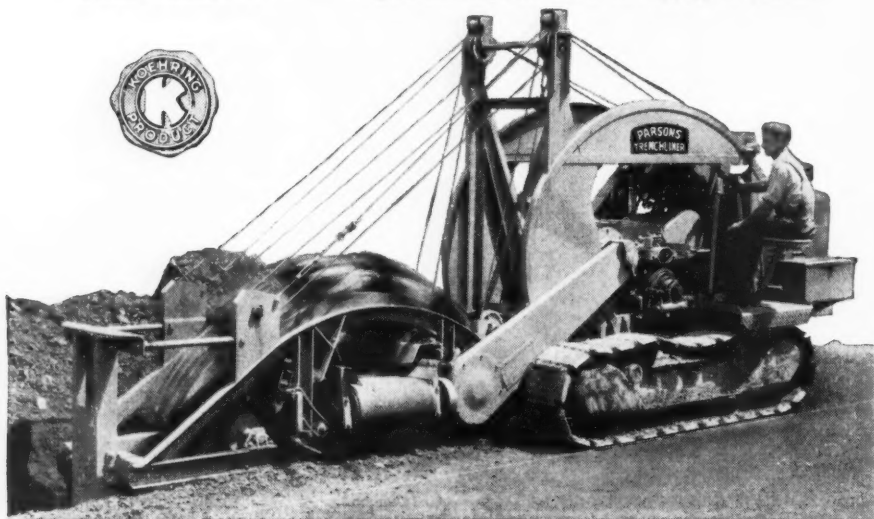
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ALL THE FACTS YOU WANT....

# PARSONS 200 Wheel TRENCHLINER

DIGGING WIDTHS ..... Buckets only: 15" 18" 21"  
 With side cutters: 20" 23" 26"  
 DIGGING SPEEDS ..... 25 — from 2.5" to 118" per min.  
 TRAVELING SPEEDS ..... 5 — from 1/2 to 2.7 M.P.H.  
 CONVEYOR BELT SPEEDS ..... 5 — from 45 to 330 feet  
 WHEEL SPEEDS ..... 5 — 36 to 266 feet per min.  
 POWER ..... Gas — Waukesha 6 cyl., 55 H.P.  
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 TRACTOR TYPE CRAWLERS ..... Optional equipment for pipeline work.  
 TILE BOX ..... Optional — for tile laying.  
 SPECIAL GUMBO LIP ..... Optional — replaces teeth for digging in gumbo.



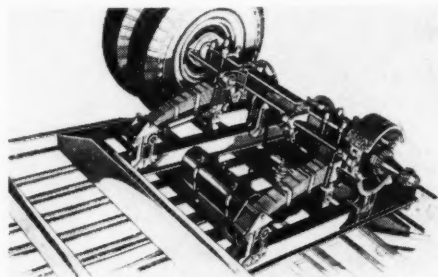
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**TRENCHING EQUIPMENT**



**SPRING SUSPENSION FOR TRAILERS**—"Multi-rate" spring suspension for single-axle trailer construction provides rate of spring stiffness in correct ratio to load carried. When load is applied, spring makes contact with hangers which are precision shaped to control spring length ac-



curately and, thus, rate of spring stiffness. Engineered with self-lubricating, friction-reducing rollers, horizontal radius-rod mountings; elimination of helper springs; and patented "tying" of radius rod direct to axle. Model 5 assures proper spring action throughout entire range from no load to heavy overload. Design of adjustable radius rod practically eliminates forward or backward movement of axle.—Fruehauf Trailer Co., Detroit, Mich.

## Shunk Snow Plow and Ice Removal BLADES

Proved record of superior performance. Made of specially developed steel to withstand severe service conditions.

FOR ALL TYPES AND MODELS OF SNOW PLOWS

Various widths, lengths, thicknesses—flat or curved—standard or special-punched ready to fit your machine.


SHUNK SAW-TOOTH ICE BLADE

Amazingly effective. Thoroughly breaks up and removes heavy, slippery ice and snow formations. Replaces all types of snow plow blades or maintenance units. Write for Bulletin and name of nearest Distributor.



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The speed and smoothness with which a Bucyrus-Monighan walking dragline executes its digging cycle . . . the effortless way its rolling-cam walking action carries the unit safely around trouble . . . the easy control and split-second response . . . the almost unbelievably low maintenance requirements of the simple machinery — every aspect of Bucyrus-Monighan performance is a study in the efficiency that means low-cost stripping. "Years Ahead" in every respect, today's Bucyrus-Monighans are the outgrowth of a unique combination of engineering skill, experience, research, and manufacturing facilities. The same combination is continually at work to develop even more effective walking draglines for your work of tomorrow.

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S O U T H M I L W A U K E E , W I S C O N S I N

# EASES TIGHT SCHEDULE SQUEEZES



SOCONY-VACUUM OIL COMPANY, INC., and Affiliates: Magnolia Petroleum Company, General Petroleum Corporation

## Here's Complete Lubrication Service to help you solve pressing Time Problems!

**QUESTION** Slowed down by mechanical headaches—too many machine failures on the job?

**ANSWER** No matter how big your operation is, or how varied your equipment—we can help you put a stop to work stoppages—by providing exactly the right oil or grease for *every* point of strain!

**QUESTION** Looking for a way to short-cut maintenance work *without* losing machine efficiency?

**ANSWER** To meet varying individual needs, we provide time-saving maintenance schedules carefully adapted to *your* type of operation, *your* type of equipment, *your* maintenance set-up.

**QUESTION** Are time-outs for refueling and lubrication putting the brakes on work-progress?

**ANSWER** Wherever *you* operate, *we* operate regularly scheduled, on-the-job deliveries. Result: Shorter field interruptions and fewer of them! Smaller inventories for you to carry.

**QUESTION** Got a "problem child" among your machines — spreading trouble—tying up other equipment?

**ANSWER** Your Socony-Vacuum Representative is trained to analyze and solve equipment problems. In emergencies, he can also call in one of our expert lubrication engineers for consultation.

*Why Be Satisfied Merely With "Gas and Oil" When You Can Get Complete Service!*

**SOCONY-VACUUM**



*Contractors'*  
**Lubrication  
SERVICE**

**CORRECT LUBRICATION  
FOR EVERY PART  
OF EVERY MACHINE**

*—Real Help with  
Maintenance Problems!*

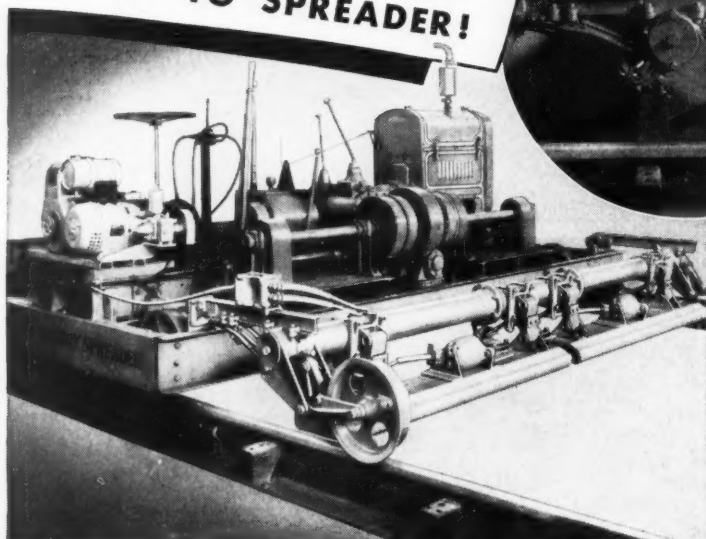
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# PASTE this in YOUR HAT

## JACKSON VIBRATORY

PAVING TUBES  
CAN BE QUICKLY  
CONVERTED TO  
TRAILER TYPE,  
SURFACE VIBRATORY  
UNITS FOR ATTACH-  
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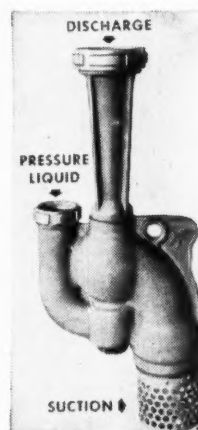
When specifications call for surface vibration immediately following a spreader, don't forget that your JACKSON Vibratory Paving Tube can be quickly and inexpensively changed to fully meet those requirements. All that's necessary is to substitute the two vibratory units shown in the illustration, for the vibratory tube and attach to the rear of the spreader by means of the hinged connections. Each vibratory unit is equipped with one or more vibratory motors of 3600 - 4200 frequency, is independently suspended and adjustable for crown and working height. Widths can be furnished to suit job. Width changes can be easily made by use of inserts. Thus the JACKSON becomes double functioning and eliminates the necessity of buying an extra machine. See your JACKSON distributor or write for further information.

Manufactured by **ELECTRIC TAMPER & EQUIPMENT CO.** for  
**JACKSON VIBRATORS INC.** Ludington, Mich.

**METALLIC TIRES**—Fine metal wire of high tensile strength is firmly bonded with rubber to provide foundation for new tire designed for heavy-duty service. Layer of thin, strong tensile wire is integrated between two laminations of rubber. First ply of rubber is placed on building wheel, rubber cement is added to

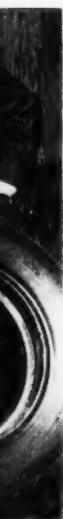


insure adhesion of wire, which is then put on by automatic device. Cement is then spread on wire before second lamination of rubber. Method of construction from this point is much the same as when building cotton or rayon tire. R. P. DINSMORE, Goodyear vice-president in charge of research, is shown examining "hard rock lug," used in off-road operations and "hi-miller," built for highway use.—Goodyear Tire & Rubber Co., Inc., Akron, Ohio.



**JET PUMP**—Portable eductors find ready use in pumping operations as they are said to combine versatility with low initial and maintenance costs. They are of simple, sturdy construction with no moving parts and can be made of variety of materials including plastics to fit conditions. High velocity pressure jet entrains secondary liquid to be moved and converts kinetic energy of pressure liquid into static head capable of lifting water up to 75 ft. Pressure water used may be obtained from water mains, pumps, head races or similar sources. No foundations are required and hose can be easily coupled on.—Schutte & Koerting Co., 12th & Thompson Sts., Philadelphia, Pa.

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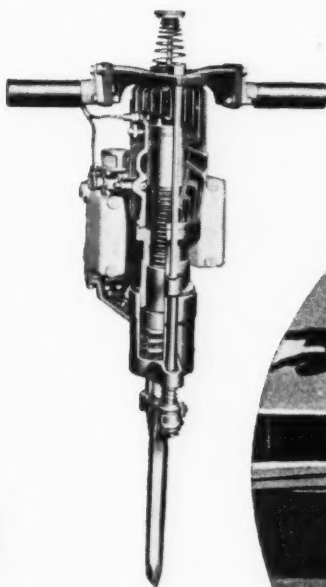
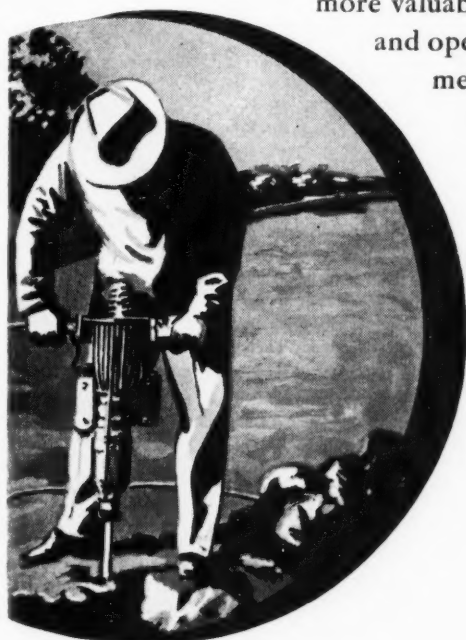


## MEETING CRITICAL NEEDS

*...Winning a Still  
Greater Following*

Thousands of jobs are moving faster because Barco Hammers are at work, hitting hard and tirelessly. On construction, repair, demolition and expansion projects, big or small — this compact, portable unit is increasing the output, cutting down on time and cost. Breaking, driving, drilling, tamping—in use singly or in a crew — Barco Hammers have never been more valuable, never more praised by owners

and operators alike. Eleven special tool attachments, quickly interchangeable. Send for complete particulars. Barco Manufacturing Co., Not Inc., 1812 Winnemac Ave., Chicago 40, Ill.



# BARCO

## Portable Gasoline HAMMERS

Free Enterprise—The Cornerstone of American Prosperity

# You'll Get the Best with INTERNATIONAL

When you buy dirt-moving *power* and *equipment* from your International Industrial Power Distributor, you get this unbeatable combination:

**INTERNATIONAL TRACTORS**—built by *specialists* in engine and tractor design.

**MATCHED EQUIPMENT**—built by *specialists* in earth-moving machines and developed through close cooperation with International Harvester engineers.

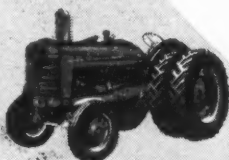
International tractor and equipment combinations are balanced units that move dirt efficiently, at lowest possible cost. They are exactly suited to your locations and the requirements of your jobs.

The tractors and engines are built to standards nowhere else excelled! Investigate their features of design and performance and you'll agree that Internationals can't be beat!

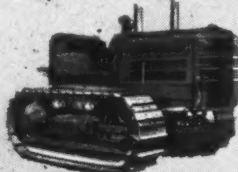
The matched equipment is equally outstanding, built by *specialists* who know the dirt-moving business from A to Z, through long experience in competing successfully for the earth-moving market. This assures the production of the best possible equipment for International Tractors and Power Units.



POWER UNITS



WHEEL TRACTORS



CRAWLER TRACTORS



In addition, the service facilities of International Industrial Power Distributors are unexcelled. Wherever you go there's a thoroughly equipped, factory-trained service organization near you to keep your tractors and equipment in first-class working order.

Yes sir! Here is the *best combination*: International Tractors, Matched Equipment and the nation-wide service facilities of International Industrial Power Distributors.

The distributor near you will give you further information about the tractors, power units and equipment now available—and about the facilities he provides for factory-level service—whenever you want it.

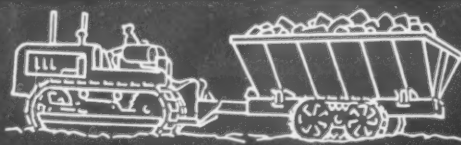
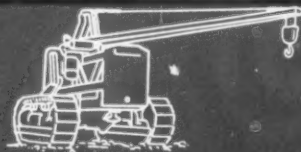
Industrial Power Division

**INTERNATIONAL HARVESTER COMPANY**

180 North Michigan Avenue

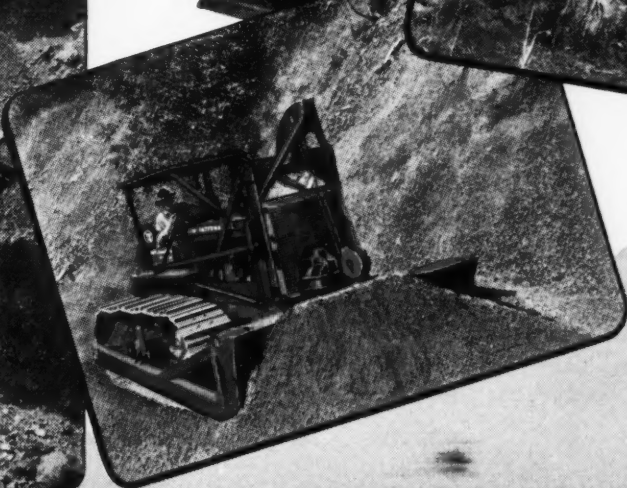
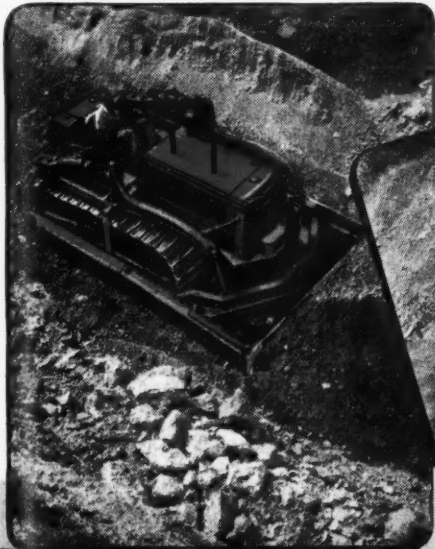
Chicago 1, Illinois

## INTERNATIONAL Industrial Power





4 sizes of INTERNATIONAL Diesel Crawler Tractors are currently available through International Distributors who also supply allied equipment matched to each.



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# This is BALANCED *Power Thrust*



Because of PERFECTION's *Balanced Power Thrust* design, Perfection Dump Bodies give longer service and Perfection Hydraulic Hoists perform more efficiently, with less wear.

Made for all makes and models of trucks. Write for complete information and name of nearest Distributor.

**THE PERFECTION STEEL BODY CO.**

Galion, Ohio

# PERFECTION

TRUCK BODIES AND HOISTS

# 1

Hoist power is applied near the center of the load and directly against the longitudinal sills.

# 2

Lifting power is distributed by longitudinal sills and cross bolsters under the full length and width of the body.

# 3

Double, compound-type lift arms prevent sway.



## TWO-TON ELECTRIC HOIST —

Yale line of Midget King electric hoists now includes 2-ton model to fit many industrial applications. Light in weight, yet producing plenty of fast lifting power, hoist is equipped with 1-hp motor. Lifting and lowering action is obtained by flip of wrist on one-hand bar grip control. To carry load, strong, lightweight alloy steel roller chain is used with special steel load hook. Hoist is available with hook for station-

ary use and with permanently attached trolley for use on overhead track. Accessories include chain container for collecting slack chain, eliminating kinking and keeping chain away from worker and load. —Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24, Pa.

# GRIFFIN

# R I F F I N

## WELLPOINT SYSTEMS

## JETTING PUMPS

## FOR SALE RENT

### Prompt Shipments

Send for our New 60 page illustrated catalog

"GRIFFIN POINTED WELLPOINT FACTS" check full of latest information on Wellpoint Systems for dewatering, emergency and permanent water supply systems, also information on pressure pumps and data for jetting.

## GRIFFIN WELLPOINT CORP.

881 EAST 141st ST. • NEW YORK 54, N. Y.

Phones: MEIrose 5-7704-5-6

# Construction Fastenings



Whenever you need fastenings for construction work, get in touch with Bethlehem. For the Bethlehem line of fastenings is so wide . . . so complete . . . that you can always count on finding the right types and sizes to meet your needs.

Bethlehem fastenings plants are modern, well-equipped. And Bethlehem engineers, thoroughly experienced in all phases of fastenings manufacture and applications, are constantly on call to consult with you on your fastenings problems.

**Bethlehem Steel Company, Bethlehem, Pa.**

On the Pacific Coast Bethlehem products are sold by  
BETHLEHEM PACIFIC COAST STEEL CORPORATION



*Bethlehem supplies every type of Fastening*

# New KOEHRING

## Easily Lifts 40,000 lbs.



Excellent visibility—up, front, left, right — makes steel setting jobs easier for the operator.

**C**HECK the new Koehring 304 Truck Crane, the new Heavy-Duty unit with all the sturdy quality of the Koehring line. The same base machine that makes the Koehring 304 a Heavy-Duty leader in the crawler class is yours on the Koehring 304 Truck Crane. Its extra strength turns added stability gained by truck mounting into extra lifting capacity. With outriggers, you easily lift 40,000 lbs. (85% rating) . . . not only over the end, but over the side and all around. Without outriggers, you lift up to 15,800 lbs.



High lifting capacity gets big pay loads, extra production, in clamshell work.

# 304 TRUCK CRANE

## Travels at Traffic Speed

### YOU ROLL ALONG AT TRAFFIC SPEED

No-pay travel time drops to the minimum. You roll along from job to job as fast as traffic flows. Where trucks go, you go.

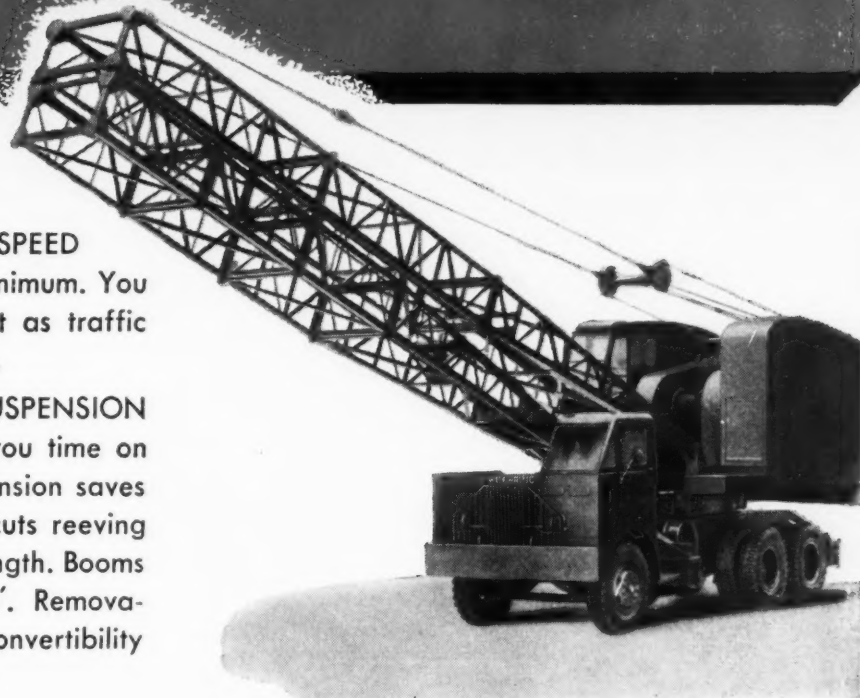
### FOLDING BOOM . . . PENDANT SUSPENSION

Hinged boom folds easily, saves you time on every move. Pendant boom suspension saves 60% of boom suspension cable, cuts reeving time whenever you change boom length. Booms up to 110'. Jib extensions 5' to 30'. Removable outriggers are optional for full convertibility to shovel, pull shovel or dragline.

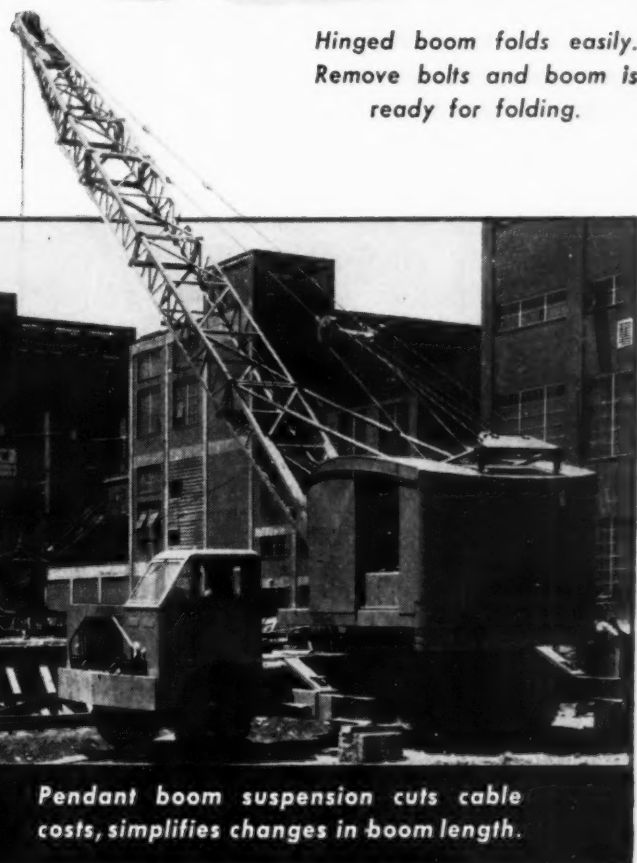
## KOEHRING COMPANY

### MILWAUKEE 10, WISCONSIN

Subsidiaries: KWIK-MIX • JOHNSON • PARSONS



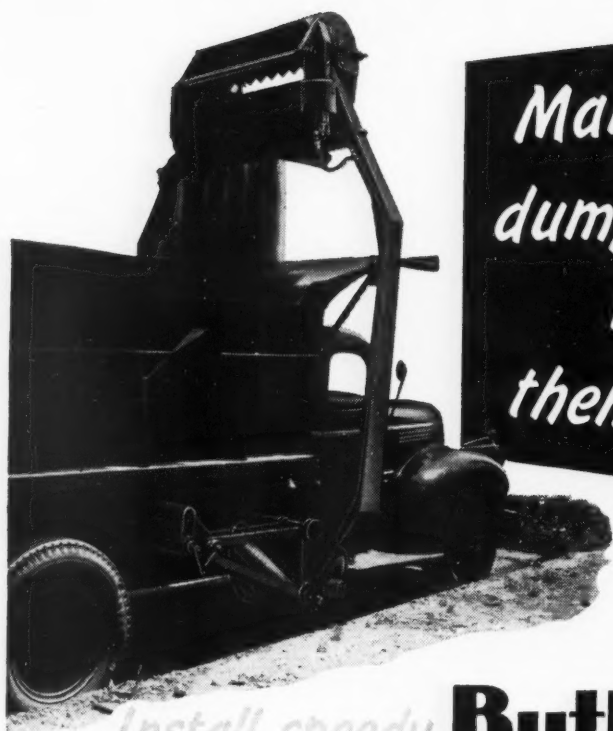
*Hinged boom folds easily.  
Remove bolts and boom is  
ready for folding.*



*Pendant boom suspension cuts cable  
costs, simplifies changes in boom length.*



*Smooth, accurate brakes and clutches  
put steel just where you want it.*



*Make your  
dump trucks  
load  
themselves!*

## *Install speedy* **Butler Truck Loaders**

**ONE TON  
PER MINUTE**

Eliminate labor and expensive, special loading equipment costs! Let Butler TruckLoaders do the whole job at **BETTER THAN A TON A MINUTE!** • Butler Hydraulically operated TruckLoaders are versatile, too . . . They build their own roads—load all kinds of loose materials—and, in addition, have a digging action similar to a scraper. • Remember also that Butler TruckLoaders can be quickly installed on your present dump truck equipment. Write for full descriptive literature.

### **SPECIFICATIONS \***

SHOVEL WIDTH	4'
STRUCK MEASURE	12 CU. FT.
LIFTING CAPACITY	1400 LBS.
OPERATION CYCLE	25 SECONDS
WEIGHT (APPROX.)	1600 LBS.

\*All specifications subject to change without notice

**Butler**  
**ENGINEERING  
& MANUFACTURING CO.**  
1052 West Sixth Street • Los Angeles 14, California



Loading street sweepings next to the curb



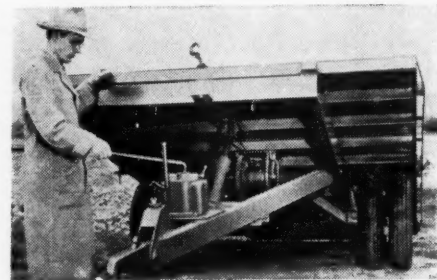
Sensitive control permits ease of operation



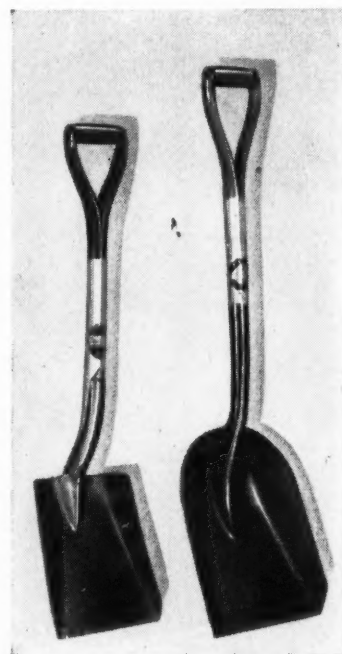
Shovel rides on load while traveling

**Dealers Wanted!** Many sales franchises are now available throughout the entire U.S.!

**TWO-WHEEL TRAILER**—New two-wheel trailer with tilting platform and patented load-leveling hitch will enable one man to load heavy objects, with easy connection to hauling unit and quick leveling of load for road travel. Trailer is made in four models, one available with chassis and tilting



frame only, for use with platform of purchaser's own design. It will transport loads up to 8,000 lb. Important labor-saving feature is patented 2-in. ball and socket hitch which connects trailer to rear of passenger car, truck, or other prime mover. End of hitching arm, which holds socket, swings up and down on swivel actuated by crank. Cranking brings socket quickly and easily to exact connecting position.—C. N. Monroe Mfg. Co., Flint, Mich.



**BLADE EDGES  
GUARANTEED SPLIT-PROOF**

**INGERSOLL SHOVELS**  
*"The Borg-Warner Line"*

Write for Catalog and Prices  
INGERSOLL STEEL DIVISION  
BORG-WARNER CORPORATION  
New Castle, Indiana

Plants: New Castle, Ind.; Chicago, Ill.; Kalamazoo, Mich.



Agricultural Limestone Plant of L. W. Hayes, at Junction City, Kansas, powered by a MURPHY DIESEL ME-6, 5 $\frac{3}{4}$ " x 6 $\frac{1}{2}$ ", 6-cylinder, 135 HP continuous, 160 HP intermittent.

## DEPENDABLE POWER FOR PULVERIZING AGRICULTURAL LIMESTONE

**M**URPHY DIESEL is the rock crusher's answer for power that helps boost total output above average. These rugged, dependable engines have *proved this* to many portable and stationary plant operators.

MURPHY DIESELS are heavy-duty engines, very compact and relatively light in weight, making them ideally adaptable to portable

equipment. Economy in operation and maintenance, ruggedness that means long life, simplicity of installation and operation in any climate, and smooth, flexible, dependable power for crushing, assure you of "more power . . . more output . . . more profit."

When buying new equipment or re-powering present machines, specify MURPHY DIESELS.

**FIELD-PROVEN** *Power..*

# MURPHY DIESEL COMPANY

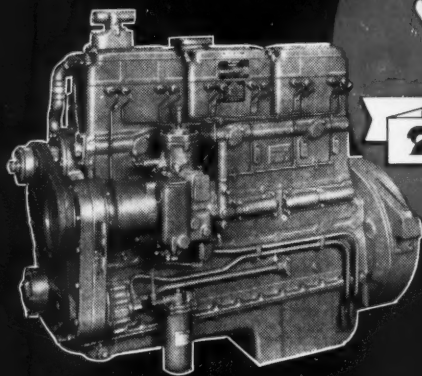
*Engines from 90 to 165 H.P. Generator Sets from 60 to 115 K.W.*


5339 W. BURNHAM STREET • • • • MILWAUKEE 14, WISCONSIN



121

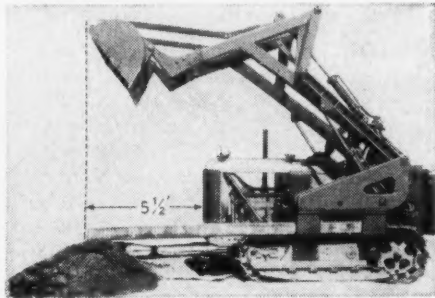
**Predictable . . .**  
**more profitable work-hours**  
**with a quality-built**



 **SINCE 1918...PIONEER OF PROFITABLE POWER  
THROUGH HIGH SPEED DIESELS**

**CUMMINS ENGINE COMPANY, INC. • COLUMBUS, INDIANA**

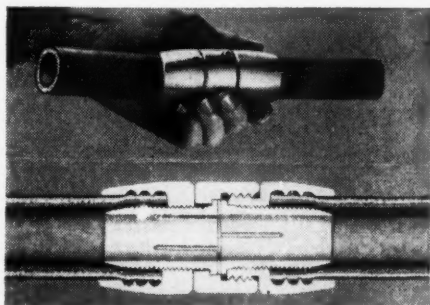
**HIGH-LIFT LOADER** — New front-end tractor loader, Drott Hi-Lift loader, with extremely high lift and reach, is designed for mounting on Oliver Cletrac crawler tractors. It has lift of approximately 10 ft. 8 in. and dumps



its load about 5 ft. ahead of radiator. Standard bucket has capacity of 1 1/4 yd. Light material handling shovel of 1 3/4 yd. is available for handling coal and other light materials. Unit is hydraulically operated and equipped with front-mounted pump. — **Drott Mfg. Corp., Milwaukee 9, Wis.**

**SYNTHETIC TIRE COMPOUND**—Industrial tires, suitable for large construction equipment, made with a special synthetic rubber compound, will resist destructive action of oils, grease and salt brine, it is claimed. Special compound can be furnished on industrial tires of all standard sizes. New compound is also said to have less rolling resistance than regular construction industrial tires and high resistance to cutting and chipping.—**The B. F. Goodrich Co., Akron, Ohio.**

**STREAMLINED HOSE COUPLING**—Smaller and lighter in weight than former couplings, streamlined, high-pressure hose coupling is used for fire, chemical, oil and spray hose where pressures exceeding 1,000 psi, are em-



ployed. Cross section shows method of locking hose into position between outer shell walls and internal expander units. Horizontal grooves provide wrench grip for tightening expander units inside nut. Note maintenance of full diameter of hose at coupling, assuring uninterrupted flow and maximum efficiency.—**Bar-Way Mfg. Co., Stamford, Conn.**

# No Crowding at the Corners

New non-collapsible tubing can be tied in knots without blocking passage of air or solids.

Air or air-borne light solids passed through SPIRATUBE\* find a smooth channel that takes the turns without seriously reducing free area.

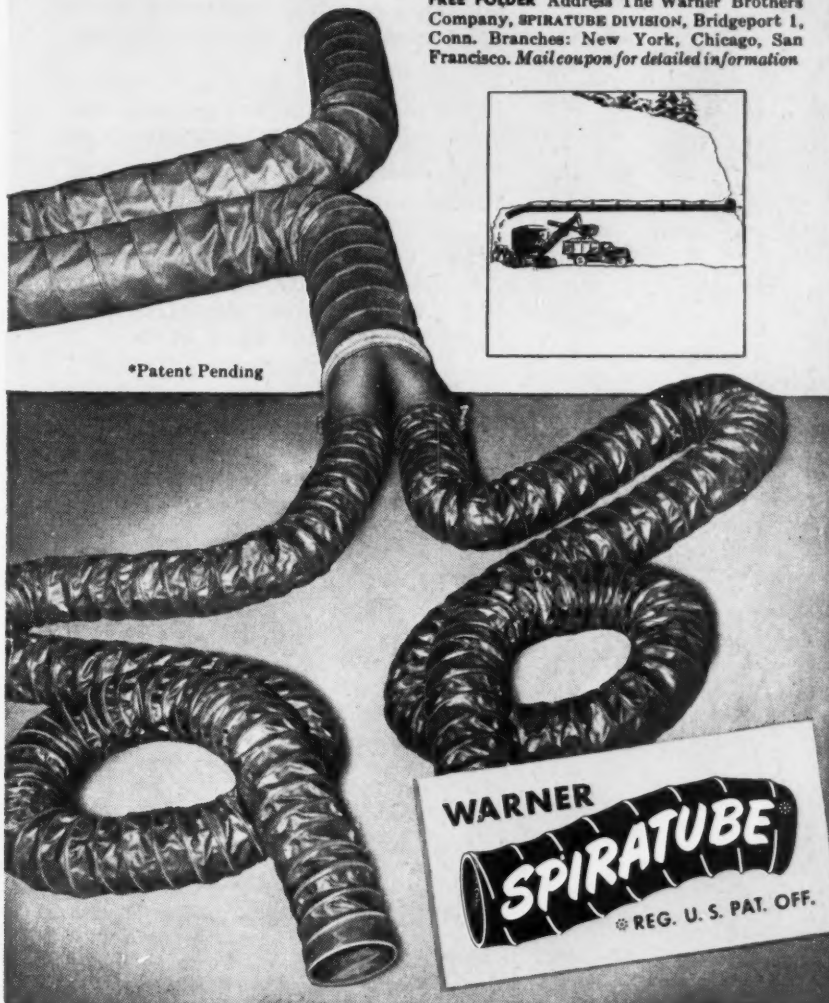
It's spiral-stitching (a SPIRATUBE exclusive) that makes the difference. No exposed wires to collect solids. No accordion-like crimping at the turns, as with ring-reinforced ducts.

**LIGHT — RETRACTABLE  
QUICK-CONNECTING — SAFE — RUGGED**

For efficient conveying, specify SPIRATUBE—non-collapsible under pressure or vacuum. For convenience, specify SPIRATUBE—light-weight, quick-connecting, self-extending, retractable to 1/2 extended length for easy stowing. For safety, specify SPIRATUBE—fire-resistant processed, no exposed metal. For long life, specify SPIRATUBE—strong-fibre duck, thermoplastic-coated.

SPIRATUBE was proved in active duty with U. S. Navy. 3"-16" diam.; lengths up to 25'.

**FREE FOLDER** Address: The Warner Brothers Company, SPIRATUBE DIVISION, Bridgeport 1, Conn. Branches: New York, Chicago, San Francisco. Mail coupon for detailed information

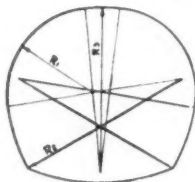
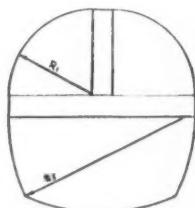
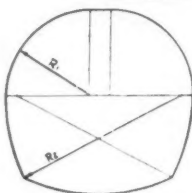
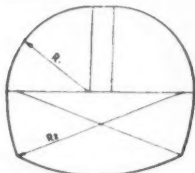
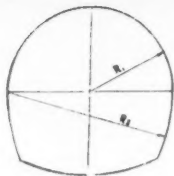


The Warner Brothers Company, SPIRATUBE DIVISION  
329 Lafayette Street, Bridgeport 1, Conn.  
Gentlemen: Please send free folder on SPIRATUBE.

Name .....  
Company .....  
Address .....

SPRINGS TO WORK ... STAYS EXTENDED ... TAKES SHARP TURNS ... CINCH TO STOW ... FOR AIR, GASES, POWDERED, GRANULAR OR OTHER LIGHT SOLIDS

# WHERE CROSS-SECTIONS CHANGE FROM STATION TO STATION



Coordinating forming methods with the concrete design may effect large savings in the construction of tunnels, conduits, walls and other concrete structures.

If the job requires 20 to 30 repetitions of similar unit pours, it is generally conceded that steel forms should be specified.

Blaw-Knox Steel Forms can be designed for easy adjustment to varying sizes of cross-sections. Advantage can still be taken of their economies and time-saving features even when the cross-sections change from station to station.

In simple diagrams and quickly read explanations the Blaw-Knox Steel Form Bulletin tells how, when, and where to specify steel forms.

**BLAW-KNOX DIVISION**  
of Blaw-Knox Company  
208<sup>1</sup>/<sub>2</sub> FARMERS BANK BLDG.  
PITTSBURGH, PA.

*Adjustment methods for  
varying cross-sections*



For the man who  
builds TUNNELS, SEWERS,  
WALLS and other concrete  
structures

Send for Bulletin No. 2035

## BLAW-KNOX STEEL FORMS

**HARD-FACING ELECTRODE**—New wear-resistant electrode for hard-facing heavy equipment is fabricated rod consisting of mild steel tubes filled with alloying elements. Coating is applied to rod by means of hydraulic extrusion press which greatly increases strength over dipped coatings and materially reduces tendency to pick up moisture. Coatings are completely uniform. Deposits are said to bond well with manganese steel and its use is especially recommended on wearing surfaces of all heavy equipment made from this metal. It is available in 1/4- and 3/16-in. rod sizes.—**Stooddy Co., P. O. Box 429, Whittier, Calif.**

### SYNCHRONOUS-MOTOR WELDER

—Utilizing inbuilt separate exciter, this welder is so proportioned that it can be started across line and automatically synchronize itself by build up of exciter. Starting current on this unit is approximately the same as conventional induction motor of same horsepower capacity. Motor is a Hobart revolving field synchronous type, furnished with heavy squirrel cage

(Continued on page 140)

## National Carbide FLOODLIGHTS



FOR ALL  
PURPOSES  
FOR WHICH  
FLOOD-  
LIGHTS ARE  
REQUIRED

Economical in Cost  
Dependable in Oper-  
ation

Available in 1500,  
8,000 and 16,000  
Simple in Construction  
candlepower units.

National Carbide N-200  
Light illustrated. Write  
for literature showing  
entire line of Flood-  
lights and Lanterns

**NATIONAL  
CARBIDE CORP.**  
60 East 42nd St.  
New York 17, N. Y.

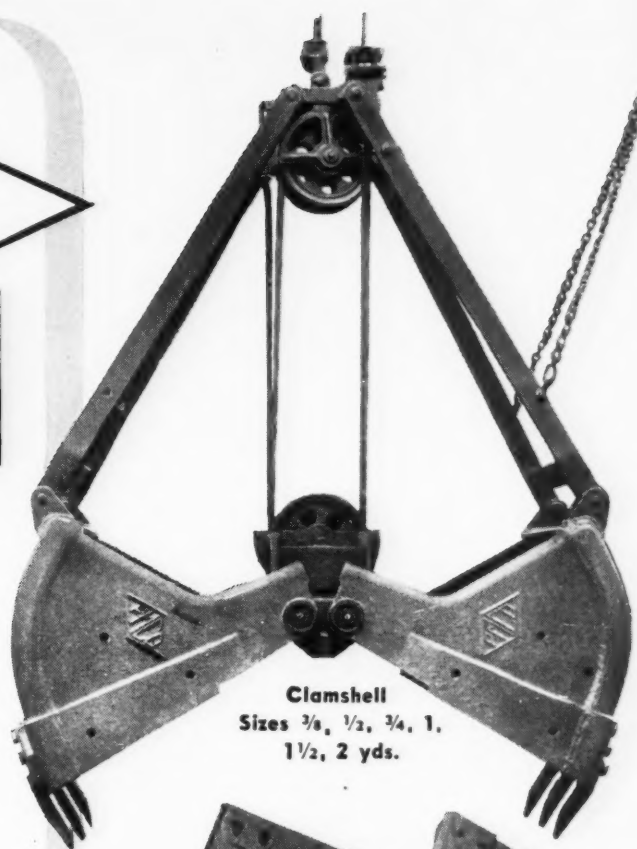


## America's Most Complete Line of Material Handling Buckets

*All purpose—*

- **SHOVEL**
- **PULLSHOVEL**
- **DRAGLINE**
- **CLAMSHELL**

• FRONTS, BOTTOMS, SCOOPS and TEETH are 14% manganese steel developing tensile strength up to 120,000 p. s. i. This high percentage manganese steel gives tough, rugged strength for hard service and allows wide set corner teeth for easy entrance in digging. Volume production methods enable us to build a better bucket with amazing economies in manufacturing.



**Clamshell**  
Sizes  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  
1  $\frac{1}{2}$ , 2 yds.

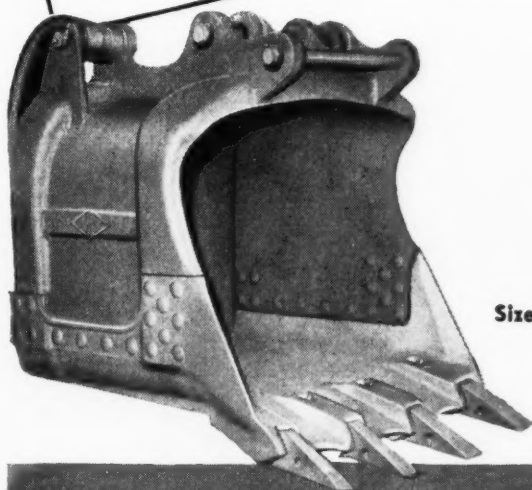


**Pullshovel**  
Sizes  $\frac{3}{8}$ ,  $\frac{1}{2}$  and  $\frac{3}{4}$  yd.

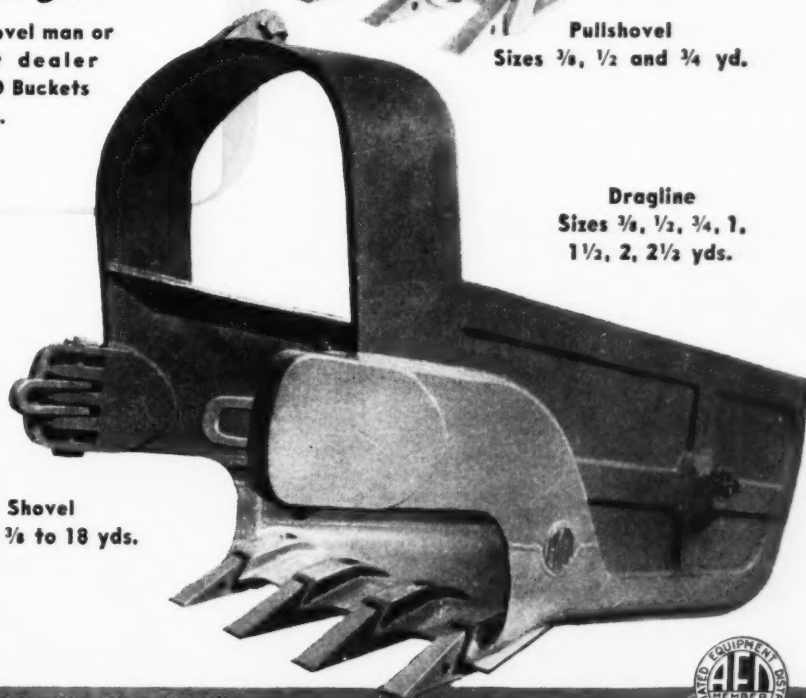
### *Experience Counts*

See your shovel man or  
equipment dealer  
about PMCO Buckets  
and Dippers.

On the  $\frac{1}{2}$  yd. and  $\frac{3}{4}$  yd.  
Shovel, Pullshovel, and  
Dragline Buckets, all  
teeth are interchange-  
able — a great advan-  
tage to operators.



**Shovel**  
Sizes  $\frac{3}{8}$  to 18 yds.



**Dragline**  
Sizes  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  
1  $\frac{1}{2}$ , 2, 2  $\frac{1}{2}$  yds.

"Quality Since 1880"

# PETTIBONE MULLIKEN CORP.

CHICAGO 51,  
U. S. A.

WE OPERATE THE LARGEST AND MOST COMPLETE MANGANESE STEEL FOUNDRY IN THE UNITED STATES.





## "We're using **KOTAL Mixes** **All Year 'Round!'**"

There's a world of difference between ordinary cold mixes and KOTAL Cold Mixes! KOTAL Master Mixes are tougher; more stable; resist stripping; handle easier and last longer. KOTAL Master Mixes are known as the "all-seasons pavement." They lay equally as well in cold, wet weather as in hot, dry, summer weather. KOTAL Master Mixes can be "stock-piled." Whether your plant is running or not, KOTAL Master Mixes will be available for the needs of your customers.

Keep your crews busy—Spring—Summer—Fall—Winter—by using KOTAL Master Mixes.

### IT'S THE KOTAL PROCESS THAT MAKES THE DIFFERENCE

#### Eight Working Features of KOTAL Master Mixes

**EASY TO USE.** Quickly mixed, ready to lay. No preheating or drying.  
**STABILITY.** Cure quickly and permanently. Do not shift, ravel or pick up. Open sooner to traffic.  
**WORKABILITY.** Do not adhere to equipment. Work easily.  
**LONG-TERM STOCK PILES.** Can be stock-piled for many months without losing workability.

**SAVE TIME.** Quickly made stock piles ready for immediate use without frequent fresh mixes.  
**SAVE LABOR.** Actual road records prove fewer labor hours required.  
**SAVE MONEY.** Savings in time and labor mean economies in road costs.  
**EXTEND PAVING SEASON.** All-weather workability permits more months of operation.

Write for your copy of booklet which tells the story of KOTAL Master Mixes. We will also send you the name of your nearest supplier.



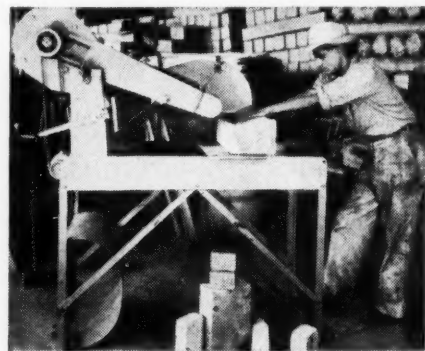
KOTAL COMPANY ★ 52 Vanderbilt Ave. ★ New York 17

# KOTAL Master Mixes

The Advanced All-Weather Aid in Building Better Roads

(Continued from page 138)  
winding. Once up to speed exciter builds up and automatically applies correct excitation to motor fields. This machine can also be used as a c. c. generator for operation of small tools, lathes, grinders, etc.—**The Hobart Brothers Co., Troy, Ohio.**

**PORTABLE DUSTLESS MASONRY SAW**—Tile, brick and concrete block can be accurately cut on job by new masonry saw with self-contained water supply system. Saw, cutting platform, belts and motor are mounted on stand with removable legs, similar to an ironing board, so it can be pulled through windows, inside kilns, etc. New-type 2-hp. electric motor weighs only 72 lb. and provides enough power for heavy duty production cutting. Circulating pump, belt-driven from



motor, sprays fine mist through concealed nozzle over cutting surface to prevent dust and cool circular blade. Conveyor cart is pushed through with steady pressure. Spring oscillator on blade mounting alternately applies and relaxes cutting pressure. Thus only one operation is necessary after saw is set and running. Blade is completely inclosed in metal housing. Oscillating action eliminates need for foot pedal. Concentration of water spray is splatterproof. Blades, chisels, marking pencils, hammers and other tools are kept in cabinet under carriage.—**Champion Mfg. Co., 1307 Washington St., St. Louis 3, Mo.**

#### TRUCK CRANE REMOTE CONTROL

—On-the-job mobility for truck carrier and crane is objective of remote control device now available in P & H truck cranes. With it, one man, from crane operator seat, can start carrier engine, operate clutch, shift gears, steer truck, blow horn and apply brakes. Control panel set up in crane cab is connected with solenoid air valves by center pin. Electrically con-

(Continued on page 142)

# Down-to-Earth Engineering



Cable Dozer

**GAR WOOD Cable Controls Feature**  
Rugged Simplicity and Direct Action Pul

The cable goes direct to the job in GAR WOOD Cable-Controlled Road Machinery. As a result, it has fast action, positively controlled.



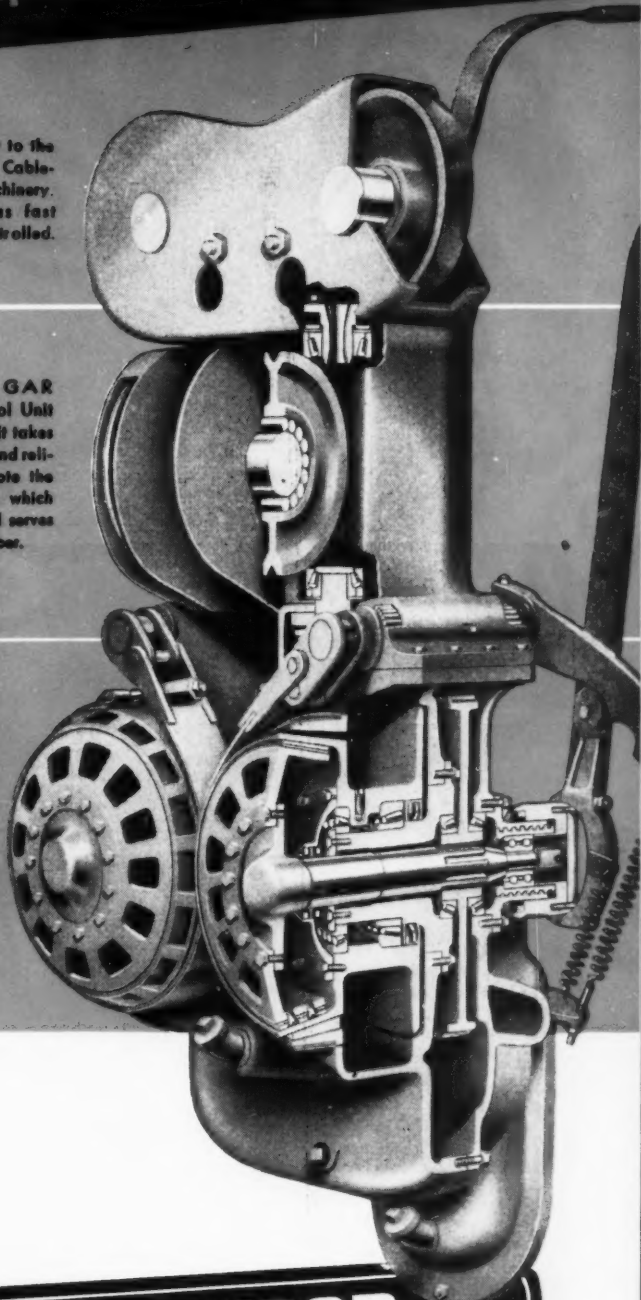
Heavy-Duty Cable Ripper

The Job-proved GAR WOOD Cable Control Unit (right) has everything it takes for smooth operation and reliable performance. Note the sturdy steel housing which prevents distortion and serves as a lubrication chamber.



4-Wheel Cable Scraper

Outside clutches and servo-type, self-energizing brakes cool themselves and are readily accessible. Roller bearings throughout and spur-type gears keep adjustments at a minimum.

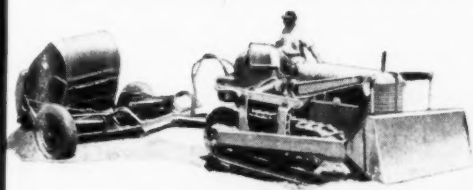


PROVED through the years on the toughest of jobs. Made more rugged than ever by the lessons learned in war action on every front, from Guadalcanal to Okinawa and from Oran to Berlin.

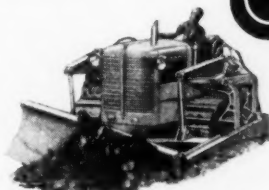
GAR WOOD Road Machinery and the famous GAR WOOD Cable Control Power Unit offers practical design and sound construction, well engineered and honestly built—equipment that *holds together* and can be operated with an absolute minimum of down time. *If it's GAR WOOD, it's good.*

See your Allis-Chalmers dealer. He'll be happy to give you all the facts and show you Gar Wood Earth Moving Equipment *on the job* in your own vicinity.

**GAR WOOD**  
**ROAD MACHINERY**  
WITH ALLIS-CHALMERS DIESEL POWER



Gar Wood 2-Wheel Hydraulic Scraper and Bulldozer



Gar Wood Hydraulic Dozer

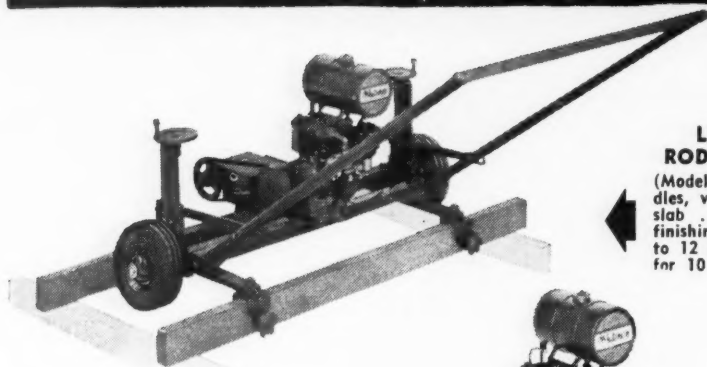
OTHER GAR WOOD PRODUCTS: HOISTS AND BODIES • TANKS • WINCHES AND CRANES • HEATING EQUIPMENT • MOTOR BOATS



Sold Through  
**ALLIS-CHALMERS**  
Dealers Everywhere

ROAD MACHINERY DIVISION  
**GAR WOOD INDUSTRIES, INC.**  
DETROIT 11, MICHIGAN

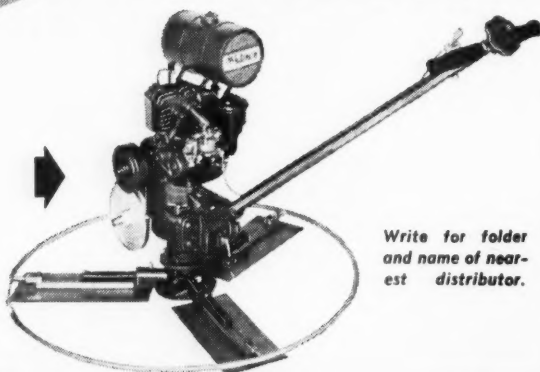
## Machine Economy and Perfection for SMALL CONCRETE JOBS



**LIGHTWEIGHT  
RODDING MACHINE**  
(Model "RS") screeds, puddles, vibrates and levels the slab . . . prepares it for finishing. For slab widths 3 to 12 ft. Also in Model 44 for 10 to 20 ft. widths.

**LIGHTWEIGHT FLOATING-FINISHING MACHINE**  
(Model "J")

For level finishing . . . for either traction or smooth surfaces. Only 105 lbs., 35" diameter. Also in Model "B", 46" diameter.



Write for folder and name of nearest distributor.

**Whiteman CONCRETE EQUIPMENT**  
WHITEMAN MFG. CO.  
3249 Casitas Ave., Los Angeles 26, California

*Specify* THE BARROW THAT IS FORTIFIED  
BY A CONTINUOUS ONE-PIECE FRAME



*Sterling's*  
**TUBULAR  
FRAME**

STERLING'S Tubular Frame is a continuous, one-piece, reinforced steel tube made to take the stress and strain of tough, everyday hauling jobs. It assures a long, useful life for your STERLING Barrow. All parts are rigidly braced and supported to withstand hard usage. Specify this better barrow for your next job. While the material situation is still retarding deliveries, you can rest assured we'll ship as promptly as possible.

STERLING WHEELBARROW CO., Milwaukee 14, Wis.

**Sterling**  
WHEELBARROWS



Look for this Mark of  
STERLING Quality

(Continued from page 140)

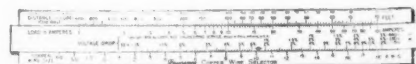
trolled compressed air instantly actuates each carrier function. Panel is for the most part a push-button instrument board; brake, however, utilizes pull-out switch.—**Harnischfeger Corp., Excavator Division, Milwaukee 14, Wis.**

**FIRE FIGHTER**—New 750-gal. triple combination fire fighter employs four-wheel drive principle with center differential which imparts balanced tractive effort to all wheels. This gives driver better steering control as wheel slippage and tendency to skid is reduced. When difficult operating conditions are encountered and traction is lost, manually controlled lock eliminates



center differential action and provides positive drive to both front and rear axles. Powered with six-cylinder 190 b.h.p. engine, Model F75T has piston displacement of 525 cu. in. and develops 410 ft. lb. of torque. Wheelbase is 160 in. Open-type body of 12-gage steel with hardwood slatted removable floor has capacity of more than 1,200 ft. of double jacketed 2½-in. hose and 400 ft. of double jacketed 1½-in. hose. Suction hose, ladders, axes and pump controls are mounted or carried on hose body in conveniently located positions.—**The Four Wheel Drive Auto Co., Clintonville, Wis.**

**COPPER WIRE SELECTOR**—New calculator of slide-rule type gives wire size to be used for any load, (1 to 100 amp.), at any distance from fuse box, (10 to 1,000 ft.), for 32, 110, 220 and 440-v. lines, according

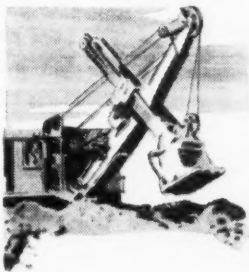


to maximum voltage drop that can be tolerated in particular installation. Proper use of this rule should be boon to civil engineer who has forgotten his electrical courses and must specify wiring adequate for construction job. Back of calculator normally carries useful tables of wire capacities and motor ratings.—**Lawrence Engineering Service, 36 N. Linwood Ave., Peru, Ind.**

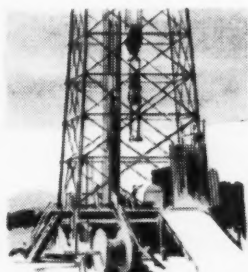
# Your New Car is Coming...

## How Wire Rope Contributes to it

Automobile factories are working hard to get your new car to you as soon as possible. They use many cranes and hoists which depend on wire rope to transmit power to moving parts. Much of this wire rope is Preformed—because Preformed is more flexible and runs over small sheaves with minimum wear. This means it lasts longer. Preformed wire rope also resists kinking or twisting and so helps speed production.



Building of new roads over which you'll drive your new car is also speeded by using Preformed wire rope on shovels, bulldozers, scrapers, graders and concrete mixers. This modern wire rope spools evenly, reduces shut-downs for replacements.



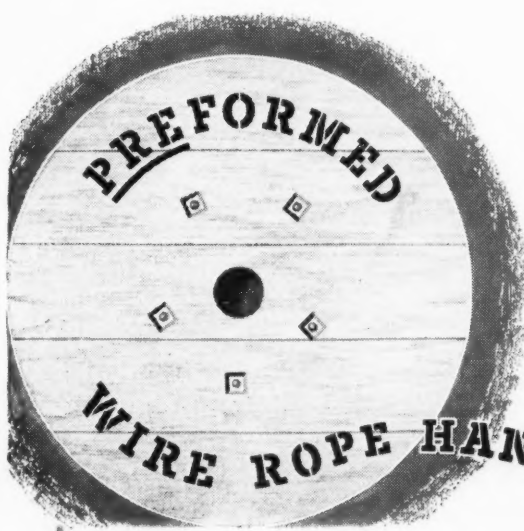
Oil that will run and lubricate your new car comes from fields where equipment rigged with Preformed wire rope is at work. Drillers like Preformed because it resists whipping, spools better on the drum. It also makes faster round trips.



Preformed wire rope contributes to speeding production of your new car... building roads... drilling oil. Men in many industries which require a wire rope that must stand up under severe service specify Preformed. In fact, companies which change to Preformed find that its exclusive built-in features pay big dividends in time, money and efficiency. Preformed is the modern wire rope for modern machines.

Send for an interesting new free booklet, "PREFORMED WIRE ROPE—WHAT IT IS—WHAT IT DOES." Write the Preformed Wire Rope Information Bureau, 520 North Michigan Avenue, Chicago 11, Illinois, or

ASK YOUR OWN WIRE ROPE MANUFACTURER OR DISTRIBUTOR





**YOU'RE LOSING TIME AND MONEY** when your equipment stands idle in the repair shop, or takes "time off" for breakdowns, tear-downs, and overhauls—and *much of this loss isn't necessary!* With Fram Filcron oil filters, equipment stays on the job longer, operating costs are less, production goes up!

The reason is that the Fram Filcron oil filter actually traps abrasives as small as *one micron*—.000039 of an inch in size! Filcron keeps out dust, dirt, grit, prevents formation of sludge and acids—thereby prevents unnecessary engine wear.

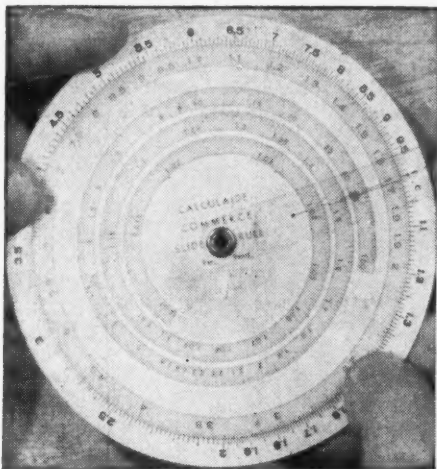
There's a Fram Filcron oil filter correctly engineered for practically any type of gasoline, gas or Diesel engine and for any conventional pressure type lubricating system. If your equipment already has filters, you can install genuine Fram replacement cartridges to step up performance. Fram engineering service and laboratory are available in determining the proper installation for both lube and fuel oil filters. Fram Corporation, Providence 16, R. I. In Canada: J. C. Adams Co., Ltd., Toronto.

# FRAM Filcron Filter

THE MODERN OIL & MOTOR CLEANER



**CIRCULAR SLIDE RULE**— Pocket-size convenience is provided by 4½-in.-dia. circular slide rule. Most-used scales are located close to edge so each is actually 12½ in. long. Easy reading is assured by use of contrast-



ing colors on scales. Graduations are reproduced on facing surfaces, protected with thin plastic laminations, to eliminate parallax error. Precision centering and durable construction eliminate need for centering adjustment. Calculaide slide rule carries usual C and D scales, plus log-

(Continued on page 146)

## RAPID!



Junior Model with Horizontal Frame Attachment.

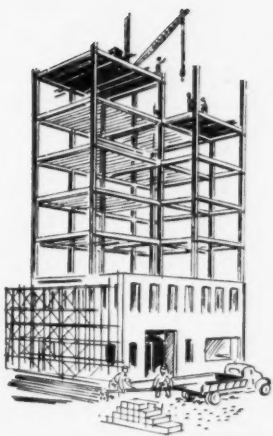
Will break 15 inch reinforced concrete walls up to 10 feet high. Frame attachment can be removed and boom tipped up to vertical position for breaking all types of pavement.

Ask about our

**HEAVY-DUTY TYPE**

**RAPID PAVEMENT BREAKER  
COMPANY**

1517 Santa Fe Ave. Los Angeles 21, Calif.

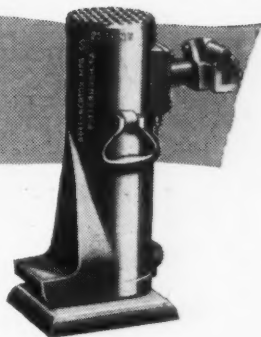


.. for every construction job

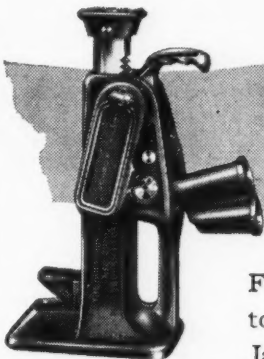
## DUFF-NORTON JACKS

### HEAVY DUTY SCREW JACKS 15 to 100 TONS

For that heavy lifting and lowering, Duff-Norton Heavy Duty Screw Jacks provide the easy-operating "mechanical muscles."



### AUTOMATIC LOWERING JACKS 5 to 25 TONS



For speedy operation on loads up to 25 tons, Duff-Norton Automatic Lowering Jacks are safe, dependable and economical.

### TRENCH BRACES

You speed up shoring and prevent cave-ins when you use Duff-Norton Trench Braces and Fittings on your trenching.



**WRITE for descriptive bulletins on Duff-Norton Jacks for construction work!**

**THE DUFF-NORTON MANUFACTURING COMPANY**

P. O. BOX 1889, PITTSBURGH 30, PA.

RATCHET JACKS, SCREW JACKS, AIR POWER AND HYDRAULIC JACKS

SEE YOUR A.E.D. DISTRIBUTOR

**Mall Drills**  
REG. U.S. PAT. OFF.

**SPEED UP  
FORM CONSTRUCTION**



**MODEL 125  
1 1/2 INCH DRILL**

Quick, clean holes—1/2" to 1" in diameter—for concrete form ties and clamps are a pushover for Mall Drills. These powerful, compact, cool-running, light-weight drills are easy to use when drilling wood, steel or plastics. They will not stall under hand pressure, and their husky, 3-jaw geared chucks hold auger bits and twist drills with a vise-like grip that prevents slipping and chattering.

Commutator can be easily and quickly serviced and brushes replaced without dismantling the drill. Ruggedly constructed of the finest materials for long, continuous service. Have die cast aluminum housings, helical cut hardened steel alloy gears and universal motors. Available in 2 voltages—110-volt AC-DC or 220-volt AC-DC.

Ask your Distributor or write for literature and prices.

CONTRACTORS' EQUIPMENT DIVISION

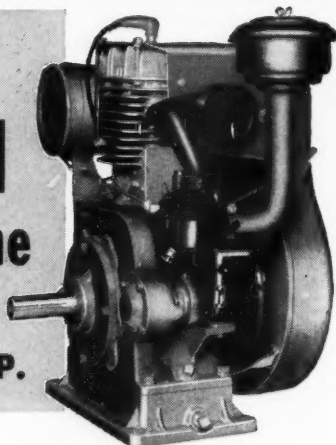
**MALL TOOL COMPANY ★ 7757 South Chicago Ave., Chicago 19, Ill.**

25 Years  
of "Better Tools  
For Better Work"

**Mall**  
REG. U.S. PAT. OFF.

**PORTABLE  
POWER TOOLS**

*This* **HEAVY-DUTY  
WISCONSIN**  
*Air-Cooled Engine*  
**IS AVAILABLE IN 4  
SIZES ... 4 TO 9 H. P.**



Illustrated above is the Models AEH to AHH series of 4-cycle single cylinder Wisconsin Air-Cooled Standard Engines, to which the following specifications apply:

MODEL	AEH	AFH	AGH	AHH
Bore.....	3"	3 1/4"	3 1/2"	3 3/8"
Stroke.....	3 1/4"	4"	4"	4"
Cu. in. Displ.....	23	38.2	38.5	41.3
Hp. Range.....	4-6	5-7	6-8.5	7-9
Weight.....	130 lbs.	170 lbs.	175 lbs.	180 lbs.

If your equipment calls for an engine within the above power range, it will pay you to give serious consideration to the Wisconsin line . . . noted for rugged, heavy-duty serviceability and thorough-going dependability.

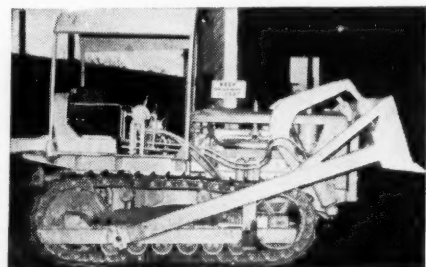
In addition to the engines listed above Wisconsin 4-cycle single cylinder engines are also available in 2 to 4 hp. sizes, and V-type 4-cylinder engines can be supplied in a power range of 13 to 30 hp. Detailed data furnished on request.

**WISCONSIN MOTOR Corporation**  
MILWAUKEE 14, WISCONSIN  
**World's Largest Builders of Heavy Duty Air-Cooled Engines**

(Continued from page 145)

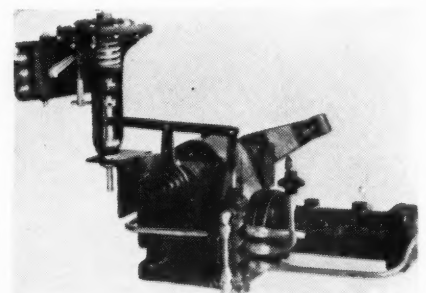
log scale ranging from 1.01 to 100 which appears on inner spiral of almost three turns. Numerous engineering problems, such as those in field of gas compression and expansion, can be easily and accurately solved on this scale. It is made of tough, non-warping, non-inflammable plastic and can be easily cleaned with damp cloth.—**American Hydromath Co., 145 W. 57th St., New York, N. Y.**

**BULLDOZER LIFT ARM**—Improved vision and increased lift are provided by new lift-arm patented by G. H. Bartlett and called "Budd-Blade." Chief distinguishing feature is location of hydraulic lifts inside



treads to allow operator at all times to see lower corner of blade. Danger of damage to operating units is also eliminated. More lifting power is obtained through pumps in which pistons travel upward instead of down. Because oil strikes full against piston head, 50 percent more displacement is provided. Device is designed so that lifting unit may be mounted on roller or motor frame.—**Vancouver Welding & Repair Co., Vancouver, Wash.**

**BOOSTER CYLINDER**—Using standard diaphragm top, oil-operated hydraulic booster cylinder for air-operated controllers provides high power amplification and permits exact positioning of heavy



dampers, valves, etc., in accordance with applied pneumatic loading pressure. Cylinder may be of crank type or of straight reciprocating type. Straight cylinders are available up to 8-in. bore and 30-in. stroke.—**Askania Regulator Co., 1603 S. Michigan Ave., Chicago, Ill.**

PICK OUT A **"TOUGH"** JOB . . . .

THEN PICK A **GENERAL** .....

.....TO DO THAT JOB

**faster**

**better**

**cheaper**



**You** know the kind . . . that job on which you've never been able to get production up where you'd like it . . . the one that's been "raising Ned" with your present equipment! That's the kind of a job where a GENERAL really stands out!

You've got a job like that . . . where operating conditions are especially bad . . . where usage is exceptionally severe. The record proves that GENERALS can take punishment,

day after day, and still turn in a creditable performance: 98% OF ALL THE GENERAL MACHINES EVER BUILT ARE STILL IN SERVICE! That's a record worth thinking about in planning the purchase of new equipment. It's a record that proves a GENERAL can handle your job—faster, better, cheaper. See your nearest distributor or write to us direct today for the complete details . . . you'll find them both interesting and helpful.

THE  
**OSGOOD**  
COMPANY  
SHOVELS, DRAGLINES  
CRANES  
CRAWLER & WHEEL MOUNTS  
DIESEL, OIL, GAS, ELECTRIC

Associated with The Osgood Company

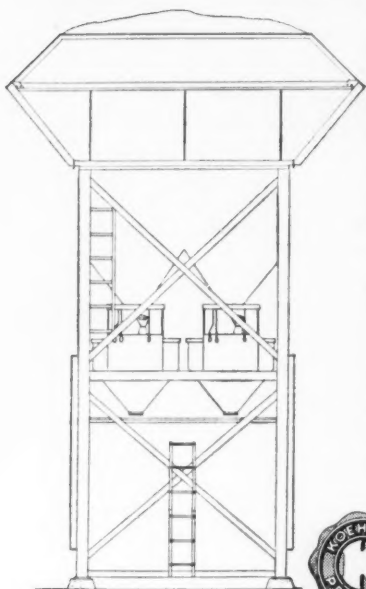
**GENERAL**  
EXCAVATOR CO.

MARION, OHIO

**GENERAL**  
CRANES, DRAGLINES  
AND SHOVELS

DIESEL, GAS, ELECTRIC

# NOW! 1-STOP LOADING FOR 2-BATCH TRUCKS AT YOUR AGGREGATE PLANT AS WELL AS YOUR BULK CEMENT PLANT



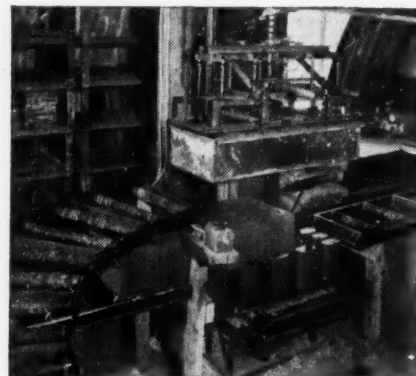
With the new Johnson Dual Aggregate Batching Plant, you can now take full advantage of 1-stop loading of 2-batch trucks at both the aggregate and the bulk cement plant. Johnson Dual Aggregate Batching Plant discharges both batches into a 2-batch truck simultaneously. Extra "spot-stops" are eliminated. On most jobs, the number of hauling units can be reduced. 100 yard, 3 compartment portable section bin is equipped with 2 multiple material batchers. One operator controls both batchers. (Of course, all Johnson Bulk Cement Plants may also be equipped with 2 batchers — for 1-stop loading of 2-batch trucks.)



*The C. S. JOHNSON Company*

KOEHRING SUBSIDIARY • CHAMPAIGN, ILL.

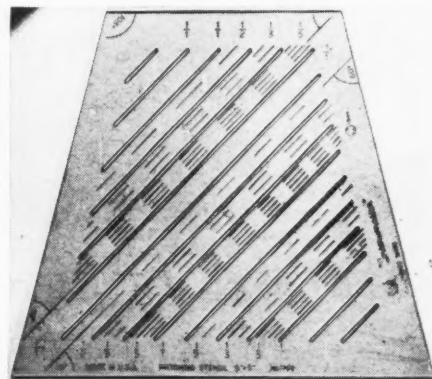
**CONCRETE BLOCK MAKER**—Gyro concrete machine plant makes five blocks at one time at rate of ten blocks per minute. It eliminates



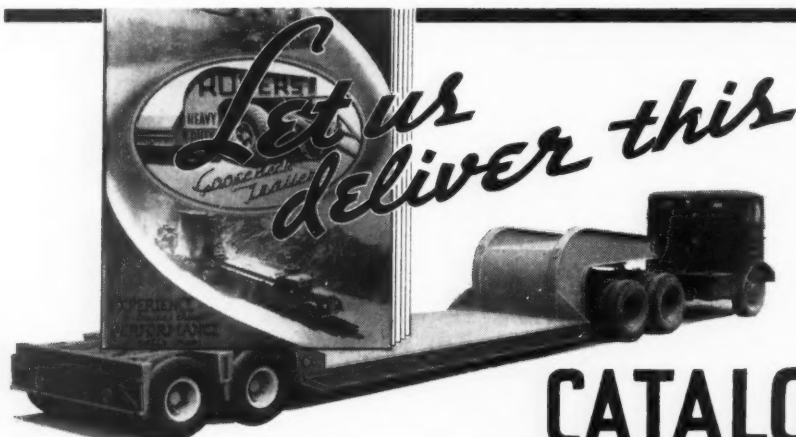
all hand work as blocks are carried on pallet which rolls on gravity conveyor from point of vibration to point of entering curing tunnel or shipping docks.—**Western Tool & Mfg. Co.**, 3409 E. 18th St., Kansas City 1, Mo.

**LIGHTWEIGHT DOCKBOARDS**—Magnesium dockboards replace heavy steel platforms used as bridges between loading docks and freight cars or trucks. They are said to weigh one-third to one-quarter as much as steel boards of equal strength. Made entirely of magnesium in plain and non-skid raised pattern floor plate and reinforced with structural members, boards are designed to stay securely in position while in use.—**Magnesium Company of America, Inc.**, 160 N. La Salle St., Chicago, Ill.

**HATCHING STENCILS**—Cross-hatching can be evenly spaced in less time by use of new hatching stencils made from clear, non-warping, non-inflammable plastic stock. Aligning marks and lettering are indelibly de-



bossed. Lines at 30, 45 and 60 deg. to horizontal can be drawn without separate triangle. Stencil, available in 5x6-in. and 6x8-in. sizes, can also be used as 75-deg. triangle.—**Instrumaster Industries, Inc.**, Greenwich, Conn.



## CATALOG

THIS catalog is more than a listing of types of trailers, with sizes, weights, etc.

It deals also with the conditions encountered in the hauling of heavy equipment and explains how Rogers' long experience as trailer builders has enabled them to meet each situation effectively.

Each trailer is broken down into units which are illustrated and described in detail.

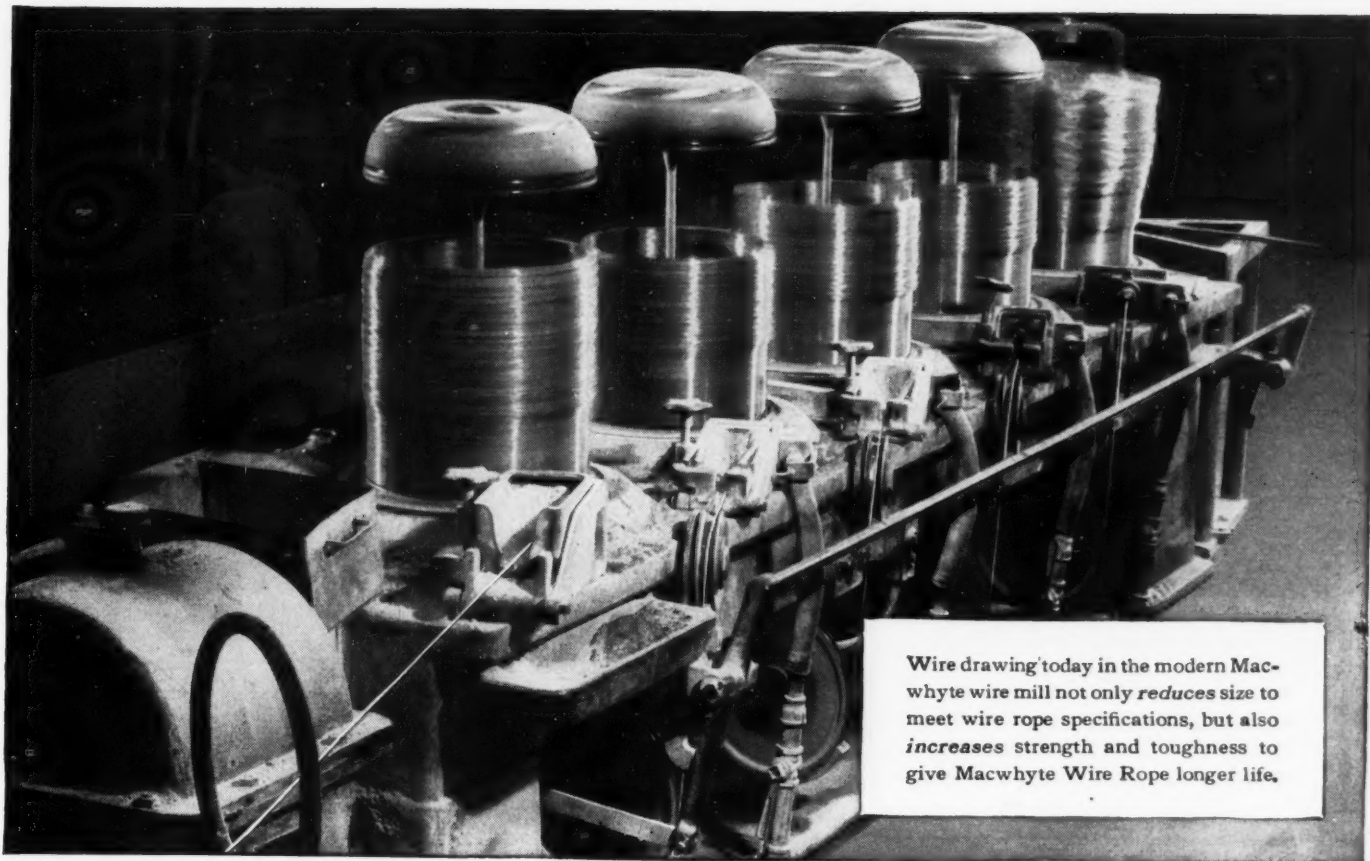
If you now operate or contemplate the purchase of heavy duty trailers, you'll find much of interest in the Rogers Catalog. Write for it.

**IT'S FULL OF VITAL  
FACTS & INFORMATION  
*You'll Surely Want*  
IF THINKING OF  
BUYING A TRAILER**

**ROGERS BROTHERS  
CORPORATION**

220 Orchard St. • Albion, Pa.

**ROGERS TRAILERS**  
EXPERIENCE *builds 'em* • PERFORMANCE *sells 'em*



Wire drawing today in the modern Macwhyte wire mill not only *reduces* size to meet wire rope specifications, but also *increases* strength and toughness to give Macwhyte Wire Rope longer life.

## *Metal flows cold* **TO INCREASE YOUR DOLLAR VALUE** *in Macwhyte Wire Rope*

You get a better, longer lasting Macwhyte Wire Rope, because we cold-draw rope wire from heat-treated wire rods.

Tungsten-carbide dies, polished to a satin-finish with diamond dust and oil, are used. The wire is p-u-l-l-e-d through the dies cold. This results in an extremely smooth round wire of practically double strength with great flexibility to resist bending fatigue.

Precision Wire drawing by Macwhyte (ex-

clusively for Macwhyte Wire Rope) is another reason why Macwhyte PREformed internally lubricated wire rope is your best buy.



Here's a helpful wire rope buyer's guide: The 170-page, completely indexed Macwhyte G-15 catalog will be sent free if you are a wire rope user. Just write or call any Macwhyte distributor.



### **MACWHYTE WIRE ROPE**

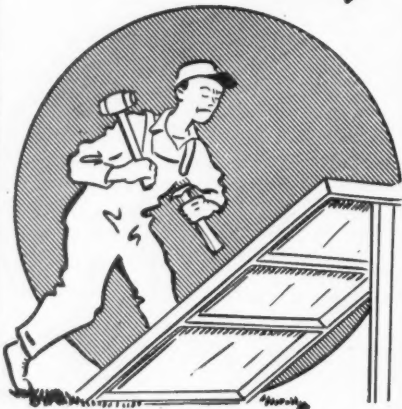
Manufactured by Macwhyte Company  
2941 Fourteenth Avenue, Kenosha, Wisconsin

Mill Depots: New York • Pittsburgh • Chicago • Minneapolis • Fort Worth • Portland • Seattle  
San Francisco • Los Angeles • Distributors throughout the U. S. A. and other countries

MACWHYTE PREformed and Non-PREformed Internally Lubricated Wire Ropes . . . MONARCH  
WHYTE STRAND Wire Rope . . . Special Traction Elevator Rope . . . ATLAS Braided  
Wire Rope SLINGS . . . Hi-Fatigue Aircraft Cables, Assemblies, Tie-Rods . . . Stainless Steel  
Wire Rope . . . Monel Metal Wire Rope, Galvanized Wire Rope.

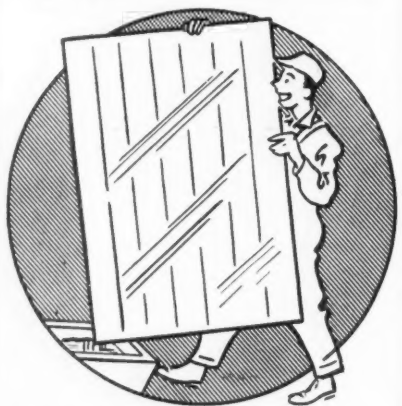
**Make MACWHYTE your headquarters for WIRE ROPE and SLINGS**

## No More Chipping and Scraping



The cleaning of encrusted cement and concrete from construction forms, tools, mixers, etc., has always been a tedious operation involving a great deal of time and hand labor. Now, with costs high and supply short, we are proud to offer the construction industry our new Concrete Remover.

## REMOVE CEMENT and CONCRETE CHEMICALLY



Non-Rust Concrete Remover loosens and removes cement and concrete from both wood and metal, without harm to the item being cleaned. It is most economically applied by dipping and can be used over and over again. For full information, simply mail the coupon below.

**NOX-RUST**  
CHEMICAL CORPORATION

NOX-RUST CHEMICAL CORP.  
2493 South Halsted Street,  
Chicago 8, Illinois

Please send me full information on your new Concrete Remover.

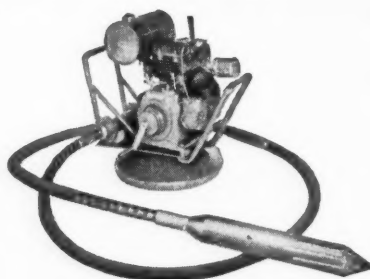
NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

**FRONT-END LOADER**—New small-tractor loader, built for mounting on Cletrac HG-42 track-type tractor, has  $\frac{3}{8}$  or  $\frac{1}{2}$ -yd. bucket and high dumping clearance of 96 in. Overall height is 90 in. in digging position and 60 in. when bucket is in carrying position. Two double-acting hy-



draulic rams, powered by front-mounted pump, raise and lower bucket. Entire unit, including loader, hydraulic pump and tractor, weighs 5,250 lb.—American Tractor Equipment Corp., 9131 San Leandro Blvd., Oakland 3, Calif.



## Concrete VIBRATORS

Gasoline Engine or  
Electric Motor Driven  
**CONCRETE GRINDERS**

**OTHER PRODUCTS**  
**FRONT END SHOVELS**  
for Industrial Tractors  
**HEATING KETTLES**  
for Asphalt and Tar  
**AGGREGATE DRYERS**  
for Stone and Sand  
**ASPHALT PLANTS**  
Portable — Stationary  
Write for Circulars

**White Mfg. Co.**

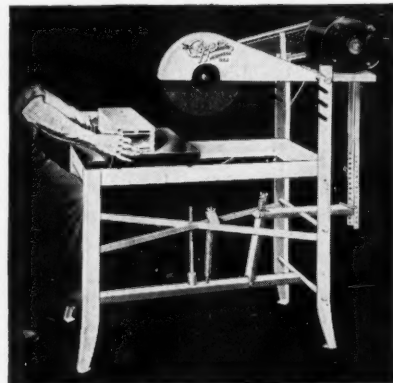
ELKHART

INDIANA

## FASTER CUTTING ...with

## Clipper Masonry Saws

Your Special Size and Shape Brick or Concrete Block can now be "Tailor-Made" at a moment's notice!



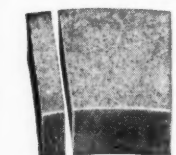
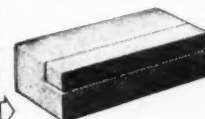
The new Clipper Multiple Cutting Principle makes possible faster cutting of every masonry material regardless of hardness.

Here are a few typical examples of the speed and accuracy with which concrete products and fire brick can be cut.



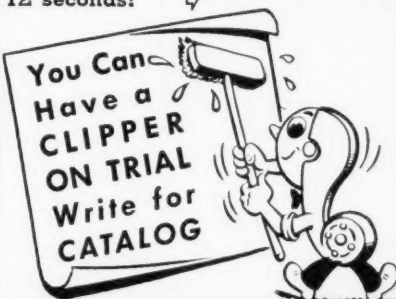
This concrete block, converted into a special size, was cut completely in two in 19 seconds.

One of the many intricate cuts performed on first quality clay brick for heat treating furnaces, — made in 8 sec.



Rotary Kiln Blocks, cut to size for "key" bricks in rotary kilns, require only 10 sec. for completion of cut.

Basic refractories for steel furnaces or cement kilns must be accurately installed. This magnesite brick was cut in 12 seconds!



**CLIPPER MFG. COMPANY**  
4035 Manchester, St. Louis 10, Mo.



Behind the symbol "*Butler Engineered Design*" stands an enviable background of nearly a quarter of a century,—not only of engineering and manufacturing experience, but of pioneering in many of the major equipment developments for

the concrete construction industry . . .

Twenty years ago, Butler pioneered

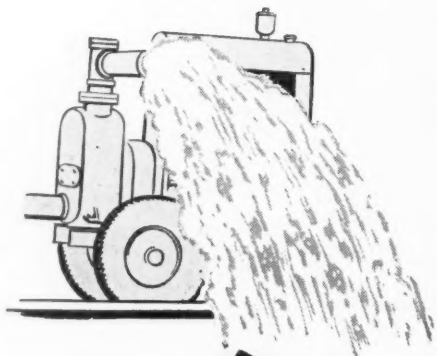
and has since led in the design of Ready Mixed Concrete Plants,—just as, more recently, Butler pioneered the construction of the modern Concrete Block Plant...The Butler Carscoop is a notable example of Butler pioneering and development in modern materials handling. Go to the pioneer for ingenuity and the engineering knowledge that only wide experience can bring.

## Background of a Symbol

# BUTLER BIN COMPANY

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## DO YOU KNOW THE CAPACITY OF THIS PUMP?



That could be a very difficult question . . . or an easy one, depending upon whether or not the contractor's pump has an AGC rating plate. If it has, then it's easy, for the AGC rating plate guarantees not only pump size but pump performance as well. It takes the guesswork out of pump buying. You know in advance exactly what your pump will do and you can plan your work schedules accordingly.

Many pumps are bought on size. But unless the pump has an AGC rating plate, the size does not assure the capacity.

Why guess? Choose the pump with the AGC rating plate and be sure!

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Waterloo, Iowa  
MARLOW PUMPS  
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Kansas City, Mo.  
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THE GORMAN-PUPP CO.  
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## ROTARY DRILL PRESS PLANER

—Easily fitted to any drill press in 30 sec., Saf-T-Plane will plane, rout, panel, bead or rabbet to any depth in woodworking materials. Positive cutting action of high-speed steel shear-type blade eliminates scraping or tearing in hard, medium or soft woods. Special cutter is available for



making square shouldered cuts, another for efficient work in non-ferrous metal and many plastic products. Features are single cutting blade, one-spot blade adjustment, protective hand and eye guard and light weight. Highly polished bell guard directs flying chips downward. Only one blade setting is necessary for precision work.—A. D. McBurney, 939 W. 6th St., Los Angeles, Calif.



## RIGID — ACCURATE

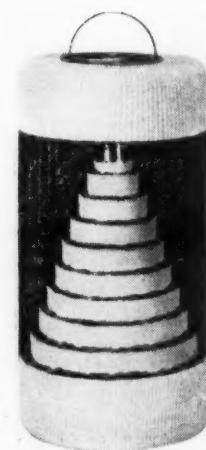
**FOR CONTRACTORS, LACLEDE DOWEL SPACERS** provide a light weight, economical method of placing dowels and joints. Distribution bars, supports, and dowel sleeves are all welded into one integral unit for rapid joint assembly. Shaped tie wires accurately locate fibre or steel joint materials.

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### LACLEDE STEEL COMPANY

ARCADE BUILDING

SAINT LOUIS 1, MISSOURI



## OIL FILTER—

Micro-filtration of oil by triple trapping is feature of "Engine-Life" filter, which is said to clean thoroughly contaminated oil, removing all damaging foreign substances without altering or reducing additives present. Long-threaded, lint-free textiles compose filtering media, scientifically compacted to uniform

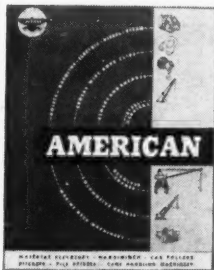
density. Laminated construction and outside-to-inside flow results in multi-element filtering effectiveness of maximum area for any given size case. Strong, flexible circular seal is built in as integral part of element. Cylindrical perforated core is made from extra-heavy, non-corroding alloy steel.—C. M. Fuller Co., 2043 Santa Fe Ave., Los Angeles 21, Calif.

## New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use

### HOIST AND DERRICK

—All lines manufactured by company are covered by 28-p. catalog. Pictures and descriptions are given for Crosby wire rope clips, blocks and sheaves, handiwinch, car pullers, hoists, steel derricks, material elevators, cane handling machinery, locomotive cranes, ditchers, pile drivers, revolver cranes, and marine deck machinery. —American Hoist & Derrick Co., St. Paul 1, Minn.



**MOTOR GRADER**—Capacity, performance and design of newly improved AD motor grader are stressed in 32-p. catalog, which gives special attention to clearance, blade construction and range, electric brakes, sturdy frame and General Motors 2-cycle, 75-hp. engine. It includes 3-p. illustration of grader and specification sheet which lists data concerning weights, six forward speeds from 1.5 to 16.6 mph., lifting mechanisms, tire sizes, fuel capacities and engine dimensions. —Allis-Chalmers Mfg. Co., Tractor Division, Milwaukee 1, Wis.

### CONSTRUCTION ACHIEVEMENTS

—This 52-p. book highlights more than 50 years of Dravo activities in many fields. Subjects covered by text and pictures include: General contracting, floating equipment, material-handling equipment, machinery installations, heating, sand, gravel and concrete, constructors' equipment and river transportation. General contracting section features navigation and flood-control dams, bridges, waterfront improvements, shafts and slopes, tunnel work, submerged shipways, pumphouses, docks and mill foundations. Wartime activities of corporation are chartered and company divisions and officers are listed. —Dravo Corp., 300 Penn Ave., Pittsburgh 22, Pa.



## M.S.A. FIRST AID KITS

Featuring the popular type "D" system of unit packaging, M.S.A. First Aid Kits provide in compact, ready-to-use form, the essential treatments called for when accidental injuries occur. Each unit package contains one or more complete treatments—ready for instant use, simple to apply, avoiding waste and lost motion. All dressings are greatly compressed to save space; all liquids hermetically sealed to avoid loss by leakage or evaporation. The standard fills of M.S.A. First Aid Kits cover all average requirements, yet can be varied for special needs. The sturdy steel cases are equipped with a dust and moistureproof gasket seal, two snap locks and brackets for mounting on wall or vehicle. Write for informative bulletin!

M.S.A. First Aid Kits are available in 10-, 16-, 24-, and 36-unit sizes, covering all service requirements.



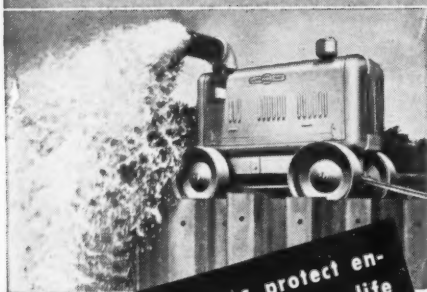
### MINE SAFETY APPLIANCES COMPANY

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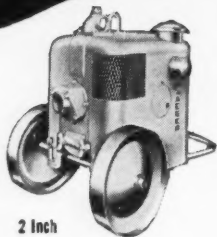
## JAEGER BUILDS BETTER PUMPS INSIDE and OUT



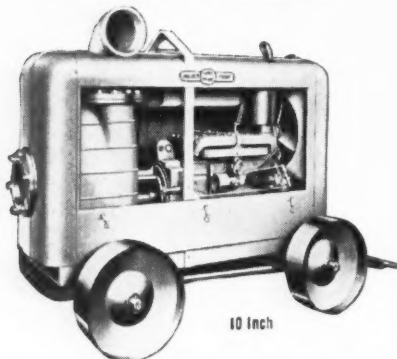
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**JOB RECORDS**—Actual job experiences of eight major contractors on 25 completed projects are assembled in 12-p. folder for study and comparison. Each job is illustrated with action photographs. Contractors' records and opinion regarding Tournapull versatility, economy and long life and presented, as well as information about various methods used.—R. G. LeTourneau, Inc., Peoria, Ill.

**WIRE ROPE CLAMPS**—Safe-line clamps are described and illustrated. Results of tests are given.—National Production Co., 4550 St. Jean Ave., Detroit 13, Mich.

**SELF-LOCKING NUTS**—"Test Procedure," 16-p. booklet, describes procedure for testing locking effectiveness of self-locking nuts and related fastening devices. It was prepared after exhaustive studies by Dr. J. A. Sauer, head of department of engineering mechanics, Pennsylvania State College. Details are given on equipment and procedure for making tests for vibration, installation and removal torque, re-use torque, and wearing and plating. It also explains how to evaluate these tests in connection with individual fastener problems.—Elastic Stop Nut Corporation of America, Union, N. J.

**AGGREGATE FLOORING**—Bulletin No. 602 explains how 100 percent emery aggregate, after being selected, crushed, graded according to size and shipped in bags, can be turned into dense, cohesive, nearly diamond-hard surface known as Emeri-Crete flooring by adding cement and water. Illustrations show how it has been successfully applied in many industries.—Walter Maguire Co., Inc., 330 W. 42nd St., New York 18, N. Y.

**PHOTOELECTRIC CONTROL**—Illustrated sheet tells about Photo-switch Series 20 and 21 photoelectric controls for general industrial and machinery applications. Specifications and dimensional sketches are included.—Photoswitch, Inc., Cambridge 42, Mass.

**SLIP RING MOTOR**—Illustrations and descriptions of parts are given for 1- to 350-hp. slip ring induction polyphase motors. Operating characteristics are listed.—Century Electric Co., St. Louis 3, Mo.

*Easily Does the  
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in Lifting Jobs!*



No. 310A: 15-ton capacity; height 22"; lift 14"; toe lift min. 2 1/4".

The Simplex No. 310A Emergency Jack is designed to safely and efficiently perform numerous jobs that a conventional jack will handle with difficulty, if at all. Its wide range and ease of application makes it a profitable equipment investment in the construction field. Lifts vertically, and lifts or pushes from any angle.

The 310A tilts on a broad, stable base. Also lifts on cap, corrugated toe or adjustable shoe that engages in cap, or from any intermediate height by using the chain as a sling. Double lever socket provides for close quarter operation.

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**SIMPLEX**  
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# LOOK AT THE LENGTH...

## ...it's the key to an important Transite economy



**T**HAT LONG 13-foot section of Transite Sewer Pipe you see in the photograph is one reason why handling costs are lower with this modern asbestos-cement pipe. Long lengths mean fewer joints to assemble—and, together with Transite's light weight, fewer man-hours to lay this pipe to line and grade.

Lower handling costs are one of several far-reaching economies possible with Transite Sewer Pipe. Others include:

**Lower excavation costs.** Because of its low friction coefficient ( $n = .010$ ), Transite Sewer Pipe has an unusually high flow capacity. Thus, flatter grades, with correspondingly lower excavation costs, are often permitted.

**Use of smaller pipe.** Instead of using flatter grades, designers sometimes take advantage of Transite's high flow capacity to use smaller diameter pipe.

**Reduced treatment costs.** Transite Sewer Pipe joints combine tightness with flexibility and so guard against infiltration. Fewer, tighter joints reduce load at disposal plant, help keep treatment costs low.

**Smaller treatment plants.** Possible because Transite minimizes infiltration. Where new plants are being designed, substantial savings in the initial cost of construction and equipment may be effected.

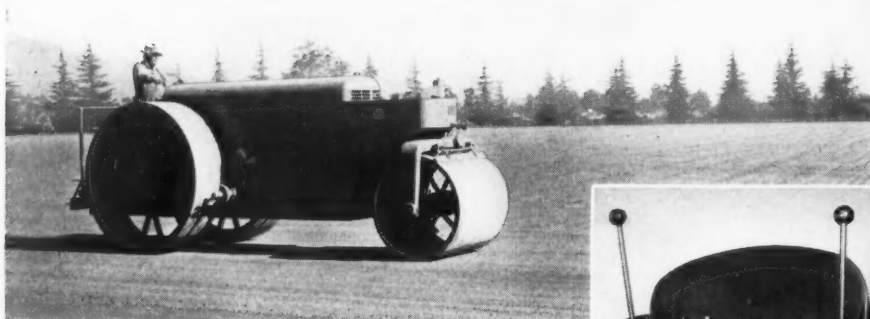
More details on Transite Sewer Pipe for gravity lines are given in brochure TR 21-A; on Transite Pressure Pipe for force mains and water lines, in brochure TR 11-A. For copies, write Johns-Manville, Box 290, New York 16, N. Y.



### Johns-Manville SEWER PIPE

*you can tell . . .*

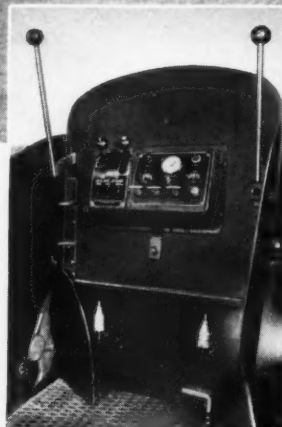
**IT'S A BUFFALO-SPRINGFIELD!**



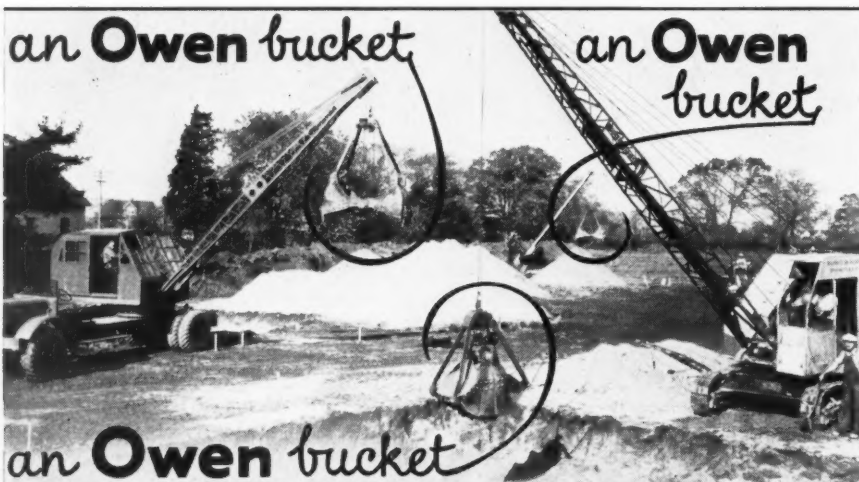
You can tell a lot by the "looks" of a piece of equipment. The smooth compact appearance of a Buffalo-Springfield Roller is the outward evidence of leadership in design. Look at the control panel at the right. Just one of the "fine points" on a machine where no part is considered too small to get painstaking engineering attention.

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**The OWEN BUCKET CO.** 6020 BREAKWATER AVE. CLEVELAND, OHIO  
BRANCHES: New York, Philadelphia, Chicago, Berkeley, Calif.

**PORTABLE GRINDING MACHINES**—Catalog MV 683, 8-pp., describes and illustrates new all-purpose portable grinding machines and tools. This equipment is designed to do great many types of grinding, wet grouting, wet rubbing, wire brushing, drilling, sanding, smoothing, finishing, buffing and polishing. —Master Vibrator Co., 200 Davis Ave., Dayton 1, Ohio.

**LAND LEVELING** — Earthmoving economies are outlined in 4-p. folder which gives ten reasons for using Tournapulls on land leveling jobs. Pamphlet is illustrated with on-the-job photos accompanied by short job stories. —R. G. LeTourneau, Inc., Peoria, Ill.

**INSULATORS** — Descriptions of three new Vibro-Insulators, Types 130, 133 and 144, are included in 12-p. booklet. These devices of rubber and metal for use on office equipment and portable machinery are said to provide quieter operation, greater stability and vibration absorption. Booklet outlines proper selection of insulator for specific requirements, cites many typical applications and gives complete table of characteristics of each type. —B. F. Goodrich Co., Akron, Ohio.

**WIRE, STRIP AND ROD**—Choosing wire, strip or rod of uniform dimensions for difficult high temperature or corrosive applications is made easier by engineering data and illustrations in 28-p. catalog. —Alloy Metal Wire Co., Inc., Prospect Park, Pa.

**PERFORATED METAL SCREENS**—New edition of 52-p. handbook, called Bulletin 70, contains illustrations, data tables, specifications and standard practice information on three types of perforated plate screens—flat, step, conical and cylindrical for concrete aggregates and the like. —Morrow Mfg. Co., McNally Pittsburg Mfg. Corp., Pittsburg, Kan.

**SUCTION AND FIRE HOSE**—Catalog sections on suction hose for sand and gravel service; on industrial fire hose for mill and plant protection; on carbon dioxide fire extinguisher; and on Flexseal hose joint provide pictures and data. —B. F. Goodrich Co., Akron, Ohio.

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**RESINOUS CEMENT**—All-purpose, acid-alkali-proof resinous cement is described in 6-p. folder. Resistivity chart shows immunity to almost all concentrations of commercial acids, alkalies, salts or solvents.—**Nukem Products Corp., Buffalo 20, N. Y.**

**PREVENTING POISONING**—Special issue of "Guide Line," 4-p. folder, offers suggestions to aid construction men in avoiding poison ivy, oak, sumac and snakes during clearing operations. Plants are illustrated and described and detailed preventive action outlined. It also explains how to avoid and deal with snake bites.—**Loss Prevention Dept., Liberty Mutual Insurance Co., 175 Berkely St., Boston, Mass.**

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**WIRE ROPE**—"Correct Handling of Wire Rope," 16-p. booklet, is first in series designed to serve as ready reference manuals in office, plant and field. It covers winding, rewinding, and seizing and gives detailed directions for attaching sockets.—**Union Wire Rope Corp., 2174 Manchester Ave., Kansas City 3, Mo.**

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WIRE ROPE  
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CONSTRUCTIONS  
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Constant, careful control through every step of manufacture assures dependable performance, safety and long life in Wickwire Spencer Wire Rope.

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**W**HEN recommending steam hose, Republic bases calculations on maximum working pressures, and selects a construction with a margin of safety far beyond that necessary for the operating conditions. The reason is that exposure to heat, over long periods, gradually tends to weaken the cotton duck reinforcement of hose. Thus, long after the recommended Republic Steam Hose has gone into service, any slight weakening effect is still harnessed well within the surplus margin of extra pressure resistance and work life. Order from your Republic Distributor.



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**PUMPS**—Bulletin D-246, 8-p., two-color, covers line of SCV pumps. It gives parts list, dimensions and selection tables.—**Economy Pumps, Inc., Hamilton, Ohio.**



**CLAMSHELL BUCKET**—Advantages of modern all-welded construction in design of clamshell buckets are analyzed in 8-p. booklet, which contains 29 photographs and drawings.

Complete specifications for general purpose, wide rehandling and heavy-duty digging buckets are given.—**C. S. Johnson Co., Champaign, Ill.**

**GYPSON SHEATHING**—(12-p. bulletin) Describes advantages and economy of water-repellent gypsum sheathing and provides specifications for its erection.—**Gypsum Association, 211 W. Wacker Drive., Chicago, Ill.**

**HIGHWAYS AND BYWAYS**—(16-p. booklet) Analyzes equipment requirements of impending road construction projects of nation and shows some of initial operations in this program.—**Caterpillar Tractor Co., Peoria 8, Ill.**

**SYNCHRONOUS MOTORS** — (24-p. booklet) Covers selection and application of synchronous motors and synchronous motor control and contains more than 50 illustrations, diagrams and tables. It contains comprehensive treatment in simple language of operating characteristics, power factor, torques, flywheel effect, speeds, excitation, starting KVA, braking, motor protection, and five principle types of control, with some fundamental considerations of costs.—**Electric Machinery Mfg. Co., Minneapolis, Minn.**

**ELLIPTICAL SCREEN**—Bulletin 111-A describes Eliptex screen, which employs unique elliptical motion with three separate components, horizontal, vertical and elliptical. These components, as well as mechanical features, are discussed in detail in 12-p. bulletin. Specific applications for dewatering, heavy media dewatering and asphalt plants are defined. Dimensions and clearances in single, double and triple-deck types are given.—**Robins Conveyors, Inc., Passaic, N. J.**

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# *The* **HEAVYWEIGHT CHAMPION...**



## **...“Marlow Mud Hog”**

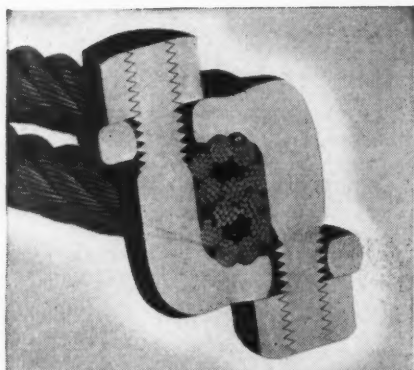
The jobs that bog down men and other types of machines are the jobs that a “Mud Hog” takes in stride. Messy, sluggish pumping . . . moving mud, sand, grit, sludge, gumbo, liquids that are almost solids or are filled with trash. These brutes of diaphragm pumps have the stam-

ina to stay and stay . . . on the grueling type of work that would defeat any other pump but a “Champ.”

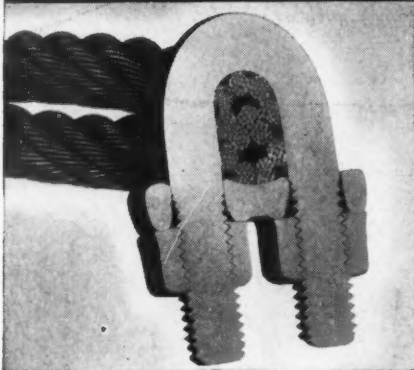
For help with your tough pumping jobs, see the complete line of models in the “Mud Hog” catalog. Drop a line and it will be sent by return mail.

**MARLOW PUMPS ★ RIDGEWOOD, N. J.**

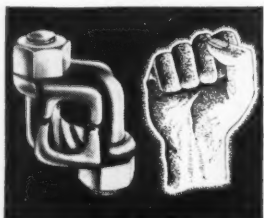
*Manufacturers of the World's Largest Line of Construction Pumps*



## WHICH WAY TO FASTEN PREFORMED WIRE ROPE?



The cross-section views show what happens to wire rope. In Fig. 1, Laughlin's "Fist-Grip" Safety Clip holds the  $\frac{5}{8}$ " rope with hardly any distortion (note hemp centers). In Fig. 2, hemp center under U shows how rope is squeezed and flattened by U-bolt's smaller bearing area and "Finger-Pinch". Both were tightened to same tension by torque-indicating wrench.



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Laughlin Safety Clips have identical saddles, flat sides; hold rope firmly without crushing. Saddles fit snugly against "live" and "dead" ends. Fewer clips deliver full rope power. The only clips with drop-forged bolts. Test them, for your rope's sake.

Distributed through mill, mine and oil field supply houses. Write for catalog. Dept. 1, The Thomas Laughlin Co., Portland 6, Maine.

# LAUGHLIN

THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS



**STEREOGRAPH DRAWING MACHINE**—(4-p. folder) Illustrates operation of new device for three-dimension drawing. It shows how expensive models or mockups of new designs can be eliminated.—**Pomeroy Stereograph Co., Inc.**, 318 Empire Bldg., Cleveland, Ohio.

**PREFABRICATION**—"Wilson System" of forms for constructing prefabricated sectional building units is described in 4-p. circular. Forms are said to be ideally adaptable for either site construction or factory mass production, as they are portable, interchangeable, reusable and collapsible. Drawings show recessed section forms, wall sections, aggregate sections, wall installation and assembly, steel forms and adjustable bottomless pan for recessed section.—**Wm. M. Wilson**, 253 S. Hoover St., Los Angeles 4, Calif.

**LIFT TRUCK**—Folder announces new LT-35 lift truck which can lift, carry and stack 1,500 to 2,000-lb. loads. It is smallest of company's line.—**Towmotor Corp.**, 1226 E. 152nd St., Cleveland 10, Ohio.

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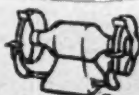
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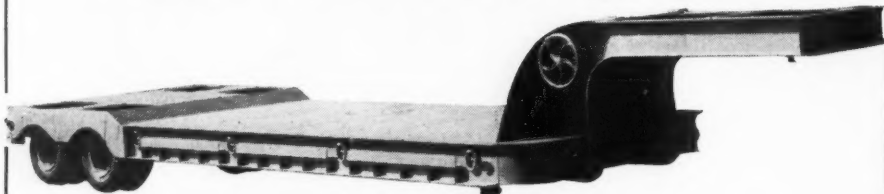
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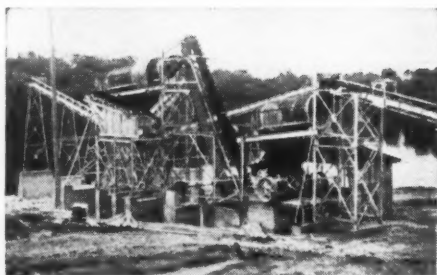
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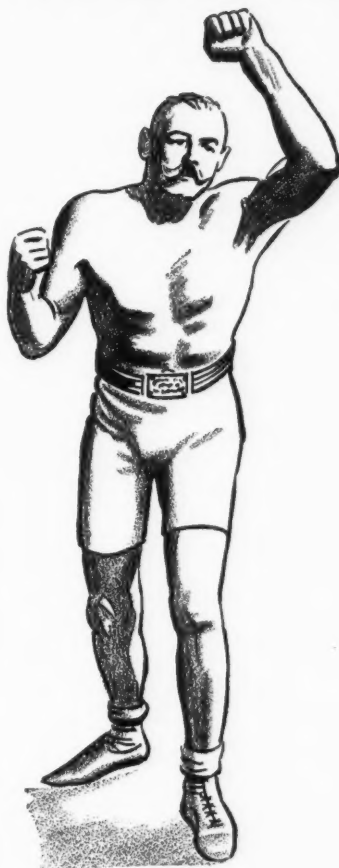
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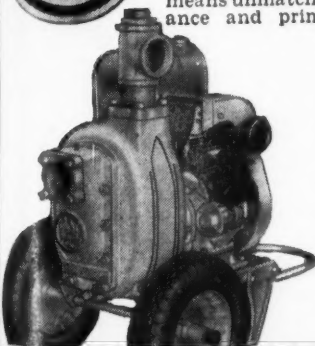
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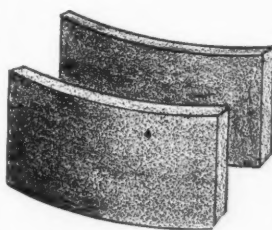
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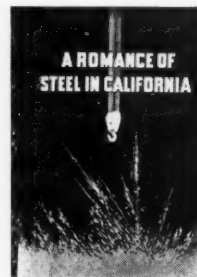
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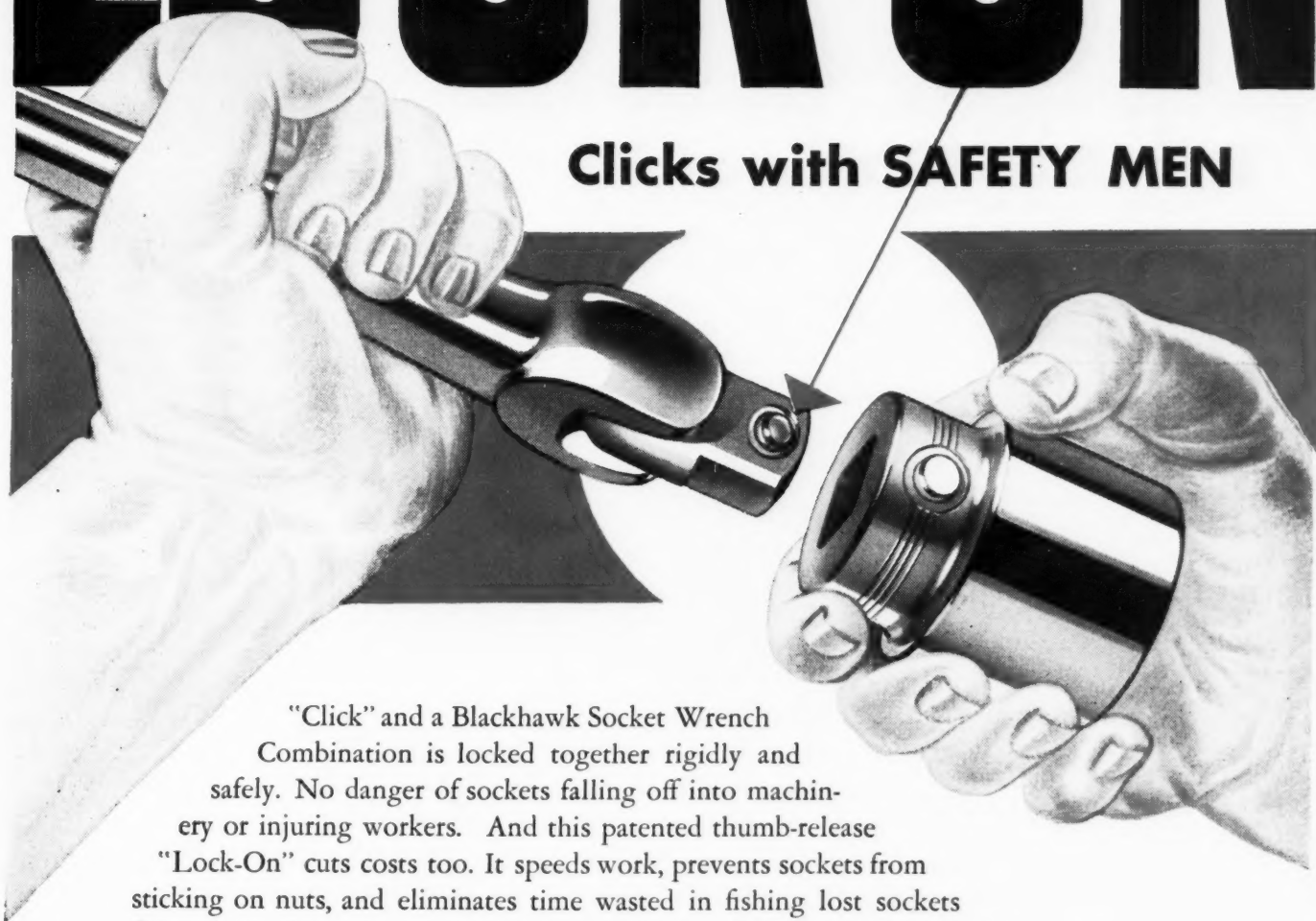
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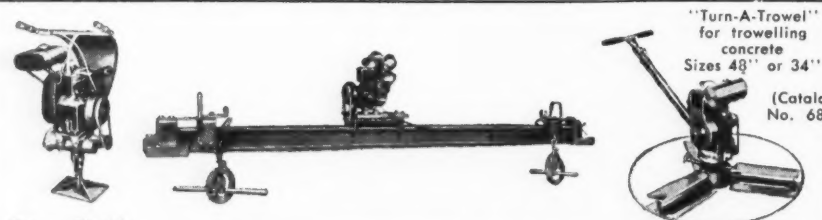


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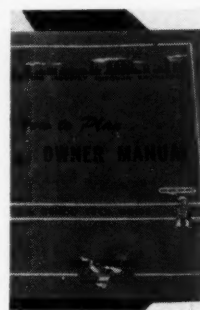
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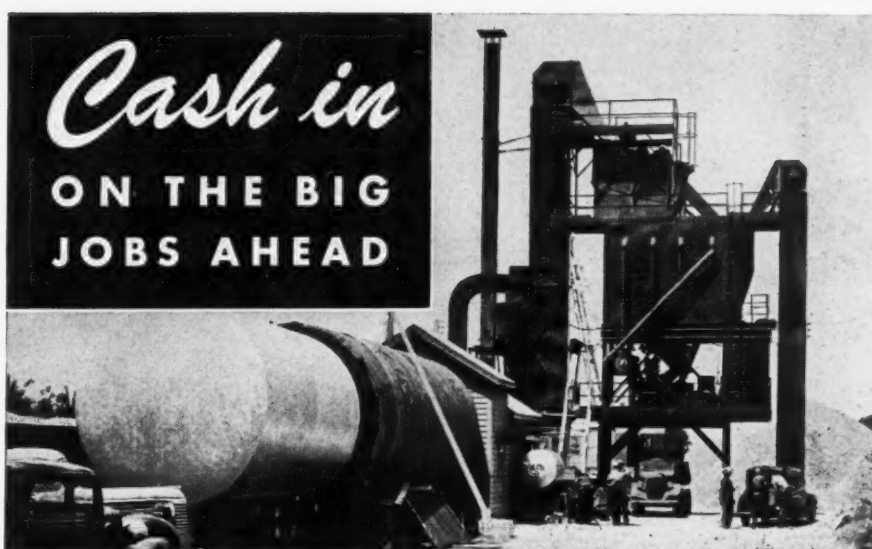


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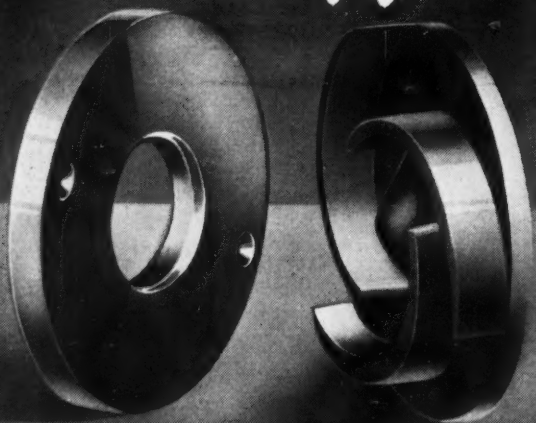
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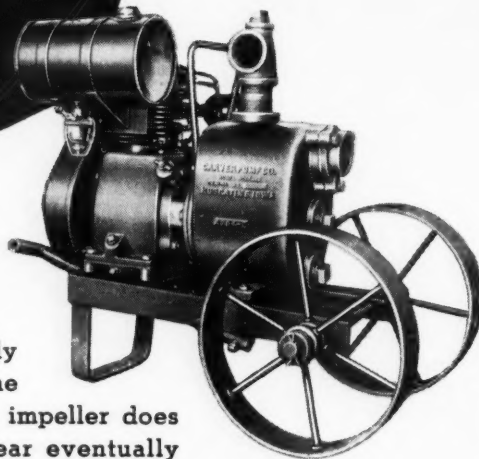
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**CLAY PRODUCTS** — (8-p. catalog) Gives information on perma-chrome ceramic glazed brick and tile, vitri-granite, unglazed facing tile, buff and gray face brick, shale face brick, red face brick, and wyandot face brick.—**Claycraft Co., Columbus 16, Ohio.**

**TRACTOR LOADER** (24-p. bulletin) Features dozer-shovel and illustrates with large photographs and pen drawings actual operating conditions on wide variety of digging, earthmoving and material-handling jobs. It emphasizes units low overhead clearance and generally compact design for high maneuverability; high visibility; maintenance of tractor balance; smooth hydraulic control; and versatility made possible by easy interchangeability from shovel to bulldozer.—**Bucyrus-Erie Co., South Milwaukee, Wis.**

**MATERIAL - HANDLING MACHINERY**—(8-p. bulletin) Describes car shakeout with which two men can empty hopper-bottom railroad cars of free-flowing bulk materials in 1½ to 7 min. Field performance tests are outlined and typical application arrangements listed.—**Robins Conveyors, Inc., Hewitt Rubber Corp., Passaic, N. J.**

the best advertisement  
for a Carrimor\*  
is a competitive test!



COMPARE THE RESULTS OF THIS TYPICAL  
TEST BY AN UNBIASED ORGANIZATION\*

Test Data	LPC Carrimor	Scraper "A"	Scraper "B"
Struck Capacity	8.4 yds.	8.2 yds.	9.25 yds.
Loading Time	1.0 Min.	1.0 Min.	1.0 Min.
Spreading Time	.157 Min.	.172 Min.	.366 Min.
Turning & Travelling time considered as constant for purposes of computation	3.22 Min.	3.22 Min.	3.22 Min.
Total Trip Time	4.38 Min.	4.39 Min.	4.58 Min.
Weighted yds. per trip	7.3	6.1	6.0
Trips per 54 Minute Hr.	12.32	12.30	11.7
Total Yds. per Hr.	89.9	75.0	70.2
Total Yds. per 8-hr. Day	719	600	562

\*Name on request

Claims are easy and talk is cheap but if you want the real facts on which scraper *will put the most money in your pocket*, we suggest a competitive test with the new 8 yard LaPlant-Choate Carrimor.\*

For example, here are the results of a typical test, conducted by an unbiased organization with no connection with any scraper manufacturer. Every condition was carefully controlled to get as nearly a perfect comparison as possible—same operator, same material, same tractor, same haul and *even the same loading time*. But look at the difference in scraper production, based on actual weighed loads at the fill! At 25 cents per yard, the LPC Carrimor\* would earn \$29.00 per day more than scraper "A" and \$39.00 per day more than scraper "B".

With an opportunity for extra profits like these, isn't it worth waiting a little longer to be sure of a Carrimor\*—the scraper that's "best by competitive test." LaPlant-Choate Manufacturing Co., Inc., Cedar Rapids, Iowa; 1022 77th Ave., Oakland, Calif.

\*Reg. U.S. Pat. Off.

**LaPLANT - CHOATE**  
*Job-Proved Equipment...* for lowest possible cost  
in Moving Earth

**IT'S EASY TO MEASURE THOSE HARD-TO-GET-AT PLACES WITH LUFKIN MICROMETERS**

**RAPID READING EACH THOUSANDTH NUMBERED**

Use a Lufkin Micrometer with a cut-away frame that slips between close clearances, simplifies the job. Each thousandth graduation is numbered, makes accurate reading easy. Write for free catalog.

**LUFKIN**

THE LUFKIN RULE CO., SAGINAW, MICHIGAN, New York City.

**UP GOES YOUR YARDAGE**

**DOWN GO YOUR SHOVEL REPLACEMENT COSTS**

Wherever there's hand shoveling, here's the way to start cutting costs. Equip your men with RAZOR-BACK, the only fully modern shovel with tapered blade thickness and tubular shank—giving you full 13 gauge thickness and strength up the middle, to take the cutting wear and stand the strain, but only 15 gauge over-all weight and better balance to speed the moving of material.

Guarantees you the most shovel service per dollar today, when dollars must be saved for profits.

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**THE UNION FORK & HOE CO.**  
 651 Hocking St., Columbus 15, Ohio

**"SURFACE PEENED"**—Every shovel "cold-worked" following heat treatment,—tests  $2\frac{1}{2}$  to 5 times tougher than fine shovels merely heat treated.

**RAZOR-BACK**  
 THE ONLY SHOVEL WITH A BACKBONE

ALSO STONE, BALLAST, INDUSTRIAL FORKS — ASPHALT AND ROAD RAKES

**PETROLEUM ASPHALT**—(12-p. article) June issue of "Lubrication" highlights story of asphalt, its origin, its place as component of petroleum oil, how ancient civilization made use of it, and how it is used today. Copies are available for free distribution.—The Texas Co., 135 E. 42nd St., New York 17, N. Y.



**CONCRETE AGGREGATE**—(92-p. manual) Deals with product's use in building construction, with particular attention to applications for insulating roof fill and structural insulating roof decks. Design data and specifications for use which are outlined are result of laboratory research and field tests made under actual service conditions. Physical values given have been checked by nationally known testing laboratories. Tables give density and compressive strength of various mixes.—Universal Zonolite Insulation Co., Chicago, Ill.

**CONCRETE DENSIFIER**—(8-p. booklet) Covers action and benefits of Plastiment, recommended by manufacturer for use in concrete to improve watertightness, strength, surface hardness and other characteristics.—Sika Chemical Corp., Gregory Ave., Passaic, N. J.

**BELT CONVEYOR IDLERS**—(26-p. bulletin) Includes photographs, tables, charts, diagrams and cutaway views. First section is devoted to proper selection of idlers, followed by description of complete line of standard idlers and section on special application units. Impact-cushioning troughing idler and rubber-covered spiral return idler are newest Rex units described.—Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.

**TEMPERATURE CALCULATOR**—(8-p. booklet) Gives instructions for using Lincoln welding preheat and interpass temperature calculator, which is intended as guide in establishing satisfactory welding procedure. It is based on effect of various alloys on hardenability of steel and is said to be much more accurate than guessing at temperatures.—Lincoln Electric Co., P. O. Box 5758, Cleveland 1, Ohio.

**GRAPPLE DEVICES** — (Illustrated bulletin) Contains suggestions for handling such materials as pulpwood, rock, scrap iron and heavy trash, as well as helpful information on all company's grapple devices for many special services.—**Hayward Co., 50 Church St., New York 7, N. Y.**

**FENCE ERECTION**—(40-p. manual) Furnishes aid to contractors, fence superintendents and others responsible for installation and maintenance of chain link fence. Each step is described in logical sequence in accordance with current field practice. Tables, charts, diagrams and detailed drawings supplement text. — **Wickwire Spencer Steel Co., 500 Fifth Ave., New York 18, N. Y.**

**TRENCHER**—(8-p. bulletin) Covers Model 120, boom-type trencher which digs trench from 18 to 48 in. wide and up to 11½ ft. deep. It features tubular bucket line boom that may be moved from left to right of center for cutting close to obstructions. Boom has unique telescoping arrangement that provides ready adjustment for cutting 7-, 9- or 11½-ft. depths. Complete specifications are given and construction details shown — **Buckeye Traction Ditcher Co., Findlay, Ohio.**

**WATERPROOFING AND DAMPROOFING**—(4-p. folder) Describes industrial asphalt emulsions, cutback asphalt coatings, hydralt protective coatings, asphalt saturated membrane, asphalt mastics and semi-mastics, and spandrel waterproofing cloth. Recommended uses for each product are given. Another 4-p. folder covers heavy-duty asphalt mastic flooring and resilient mastic underlayment.—**Flintkote Co., 30 Rockefeller Plaza, New York 20, N. Y.**

**ARC WELDING ELECTRODES**—Applications, characteristics, physical and chemical properties and recommended welding procedures for more than 40 Murex electrodes are illustrated and described in 4-color, 92-p. catalog. Broken down into use classifications, it includes electrodes for a.c. and d.c. welding of mild steels, low alloy steels, bronzes and cast iron, as well as for hard surfacing automatic welding and underwater cutting and welding work. New line of basic welding accessories has also been incorporated. Engineering data section presents in sim-

(Continued on page 172)

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*"The Name that Carries Weight"*  
**MATERIAL HANDLING EQUIPMENT**

## TRAILER TRUCKS



### UNDERSLUNG FRAME

Capacity 5 tons . . . Underslung steel frame. Safety plate, steel deck. Model shown equipped with pneumatic tires. Also available with solid rubber tires. Wheels mounted on Timken type roller bearings. This and all other Mercer Trailer Trucks (All Types—All capacities) designed by engineers whose reputation is founded upon doing things right. Literature available. Inquiries invited.

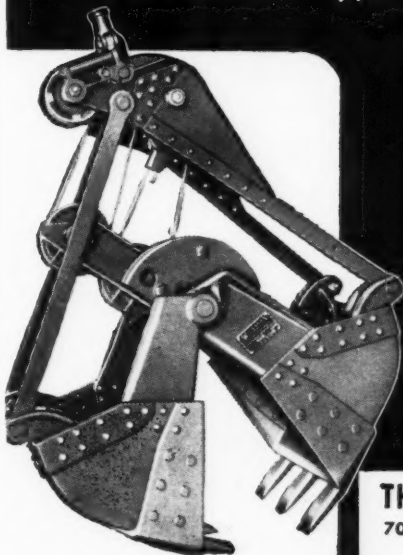
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Plant: Clifton, N. J.

SALES REPRESENTATIVE

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You get longer service with less maintenance when you use Wellman Williams buckets because this quality line pioneered the field in welded construction of high-grade rolled steel. *Wellman-built means better-built!*

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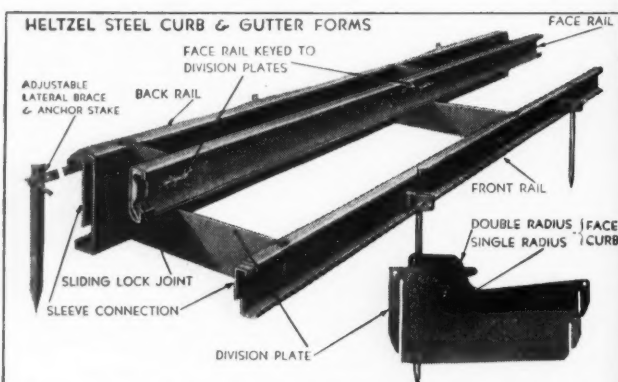
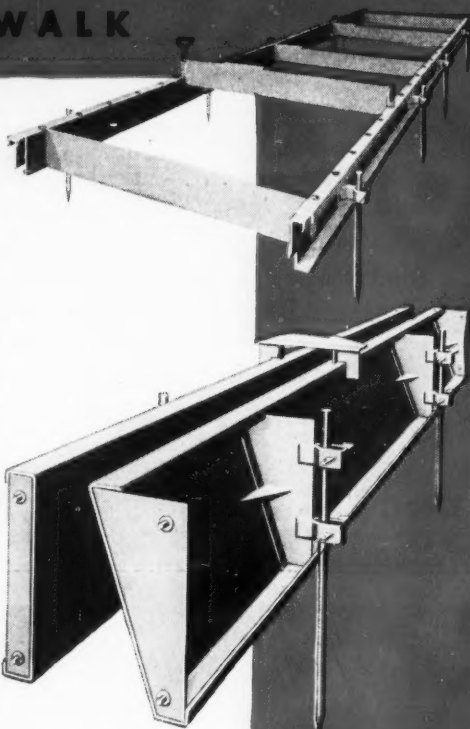
You buy Heltzel Steel Forms once. They stay in service for 20 years or more and each job you set is as uniform as the ones before. The low cost of the equipment per year of service plus the benefits of faster work with the use of forms net substantial savings.

Rigid, self-interlocking Heltzel Steel Forms make the setting and stripping job much easier and faster. No warping, no chipping, no replacements.

Heltzel has been engineering steel forms for 36 years. No matter how complicated or individual your specifications, we can furnish forms for your work.

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(Type of construction usually engaged in)

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BINS, Portable and Stationary  
CEMENT BINS, Portable and Stationary  
CENTRAL MIXING PLANTS  
BATCHERS (for batch trucks or truck mixers with automatic dial or beam scale)  
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CURB FORMS  
CURB AND GUTTER FORMS  
SIDEWALK FORMS  
SEWER AND TUNNEL FORMS  
CONCRETE BUCKETS  
SUBGRADE TESTERS  
SUBGRADE PLANERS  
TOOL BOXES  
FINISHING TOOLS FOR CONCRETE ROADS

(Continued from page 171)

plified, tabular form information designed to assist welding engineer or shop foreman in planning and estimating welding job costs. Chart of AWS welding symbols and table of ASTM steels, along with electrode and preheating recommendations for each steel, are included. Indexed electrode guide facilitates quick selection and identification of electrode types required.—**Metal & Thermit Corp., 120 Broadway, New York 5, N. Y.**

### INDUSTRIAL LUBRICATING EQUIPMENT—

Complete line of Graco industrial lubricating equipment is covered by 36-p. catalog. Contents include lubricators, hand guns, gun loader, transfer pumps, hand-operated equipment, air-operated lubricant pumps, air-operated portable and stationary equipment, vapor-scaper, industrial floor cleaner, and accessories and fittings. Plant facilities and product engineering are illustrated.—**Gray Co., Inc., Minneapolis 13, Minn.**

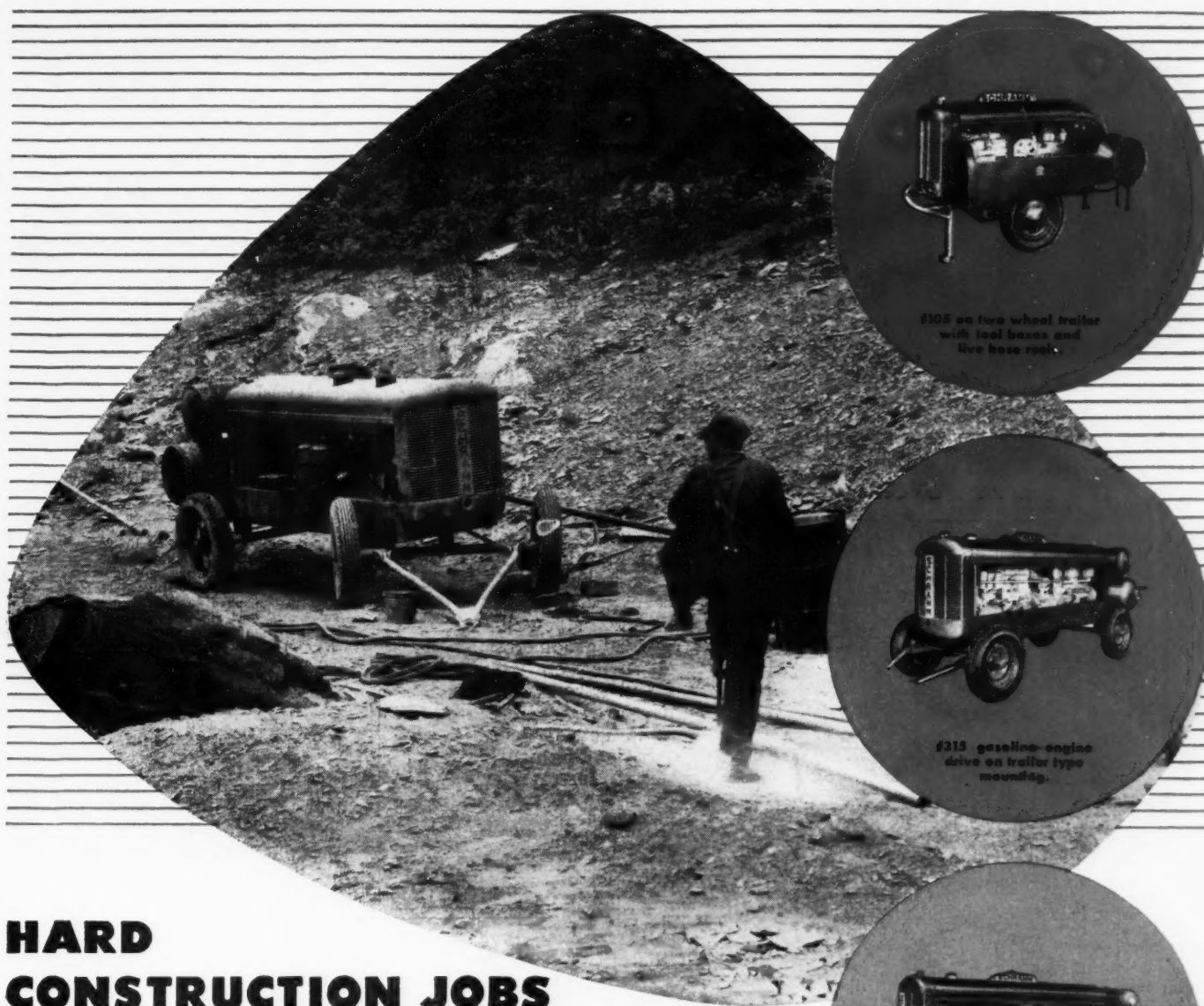


### ALL-WELDED FABRICATION—

File-folder bulletin shows several types of all-welded fabrication and construction, including all-welded stainless work. Illustrated with job photographs, it describes facilities of plant and equipment for outside construction work.—**Minweld Steel Co., Shaler and Wabash Sts., Pittsburgh 20, Pa.**

**BOILER TUBES** — An 8-p. bulletin gives information on enlarged boiler tube service of company, which has been appointed distributor of B. & W. electric resistance welded boiler tubes. Tubes in stock are listed and described.—**Joseph T. Ryerson & Son, Inc., Box 8000-A, Chicago 80, Ill.**

**ROAD MAINTENANCE AND CONSTRUCTION EQUIPMENT** — Illustrated folder describes three units for constructing and repairing airport runways, highways, roads, streets, and parking areas. They are Model 84-HD kettle, Model 155 trail-o-roller, and Model 101 utility spray tank.—**Littleford Bros., Inc., 457 E. Pearl St., Cincinnati, Ohio.**



#105 on two wheel trailer  
with tool boxes and  
live hose reel.



#315 gasoline engine  
drive on trailer type  
mounting.



#315 Diesel Engine Powered  
— Pneumatic tire  
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#210 truck mounted with  
tool boxes and live  
hose reels.

## HARD CONSTRUCTION JOBS CALL FOR SCHRAMM AIR COMPRESSORS

There are many compressed air jobs that are hard... downright hard! Here's where Schramm Air Compressors come in. Schramm features enable compressed air jobs to be done easily—quickly—economically!

Illustrated is a Schramm Compressor at work—and 4 pictures of Schramm Air Compressors. These are but a few of many Schramm models—all designed for heavy duty, continuous service, with minimum attention. The 100% water cooled feature enables you to operate Schramm Compressors with doors closed, keeping out dirt and gravel.

Schramm Compressors range in size from 20 to 420 cu. ft. actual air, in every type of mounting and assembly.

NOTE: Pneumatic Tools can be offered with all size Schramm Compressors and for almost any requirement including Rock Drilling, Paving Breaking, Backfill Tamping, Tie Tamping, Concrete Vibrating, Chain Saws and Circular Saws, etc.

For full details on Schramm models and tools, write today.

# SCHRAMM INC.

THE COMPRESSOR PEOPLE  
WEST CHESTER  
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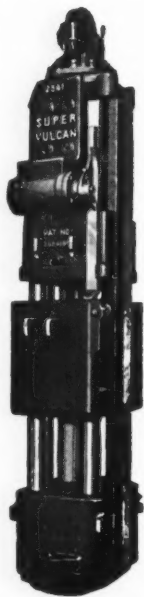
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FOR PILE DRIVING  
PROFIT! - - - -**

**SUPER-VULCAN  
OPEN TYPE  
DIFFERENTIAL-ACTING  
PILE HAMMERS  
18C, 30C, 50C and 80C**


The simplest, fastest, lowest-cost way of driving every type of pile is the Super-Vulcan way. It's brute force harnessed for double action. You get twice the number of blows per minute, every blow gives you greater pile penetration, and you use 25 to 35 per cent less steam!

The positive action, durability and compactness of the Super-Vulcan are giving rugged, economical and endorsed service in all parts of America. One user writes: "... this hammer is far superior in driving ability, considerably more economical and certainly more durable."

Meet your time schedules economically. Write for full details on the Super-Vulcan. Your request will receive prompt attention.



Sizes  
18C—30C—50C—80C  
meet all needs

**VULCAN IRON WORKS**  
Since 1852  
331 North Bell Avenue  
  
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**STEEL ROOF TRUSSES** — Two 8-p. bulletins describe bowstring and freespan steel trusses. Pictures, specifications and design tables are included. Company also has 20-p. catalog on standardized steel buildings which explains advantages and uses to which these buildings can be put. Profusely illustrated, it also gives general specifications.—Geo. L. Mesker Steel Corp., Evansville 8, Ind.



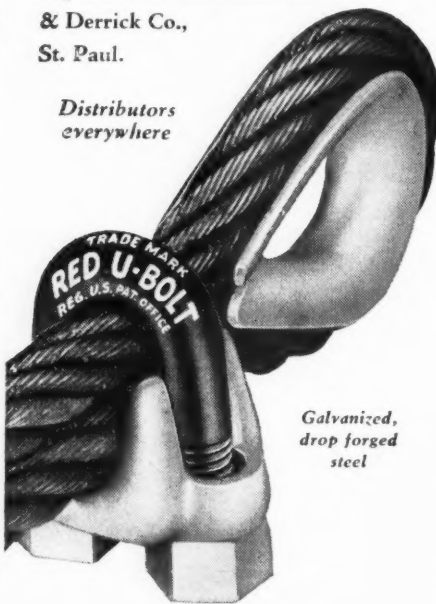
**EMULSIFIED ASPHALT** — Illustrated 8-p. bulletin describes five methods for using Bitucote: Penetration, road mix, plant mix, surface treatment, and base stabilization. Examples are given of its use for driveways and sidewalks, playgrounds, railroad grade crossings and platform, highways and streets, airport strips and aprons, parking lots and loading areas, filling station drives, and industrial floors.—Bitucote Products Co., Engineering Dept., 1411 Central Industrial Drive, St. Louis 10, Mo.

**Easy to apply!**

Every rigger knows the easy method of applying CROSBY Clips — drop forged steel for safety.

A product of American Hoist & Derrick Co., St. Paul.

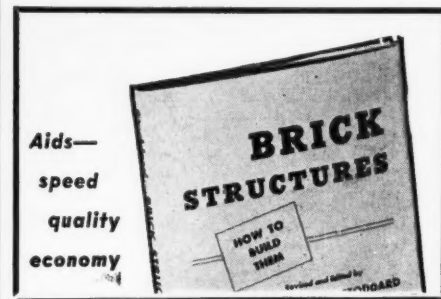
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Aids—  
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Here's the answer to every brick-building problem—a manual that shows you, step-by-step, each process of masonry construction, from the foundations to the flashings. It helps you by supplying the specific working aids you need in selecting materials, preparing mortar, constructing masonry, eliminating faults and defects, and estimating quantity and costs. It includes the design and construction of each type of brick wall—and chimneys, fireplaces, porches, walls, walks and outdoor barbecues.

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RALPH P. STODDARD

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This manual makes a good brick construction job a sure thing. It describes all the handy details which will make work swift and competent—provides special information on the new types of hollow walls, from 4" Economy walls to Ideal hollow walls 12" thick; illustrates every type of bond and joint in brickwork; lists approved details of chimney and fireplace construction. One hundred careful drawings, diagrams, figures and photographs make each step of construction clear and simple to follow.

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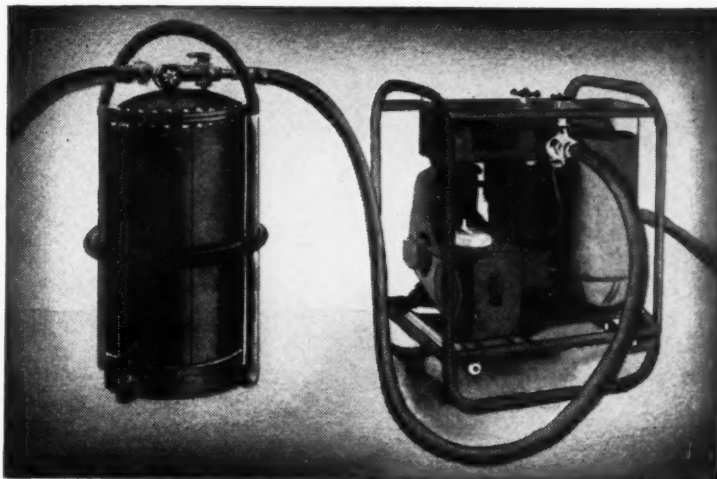
Suitable for: State Health Departments — Red Cross — Veterans Administration — Departments of Agriculture — State Forestry Departments — Boy Scouts — Girl Scouts — Sea Scouts — country homes — ranchers — farmers — expeditions — construction camps — lumber camps.

The machines, all built by well known

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To purchase this equipment simply call or write your nearest W.A.A. Regional Office.

All items subject to prior sale.



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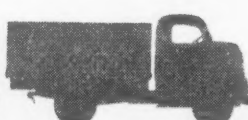
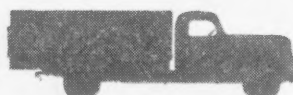
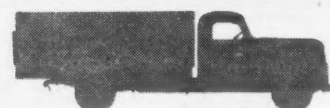
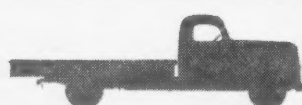
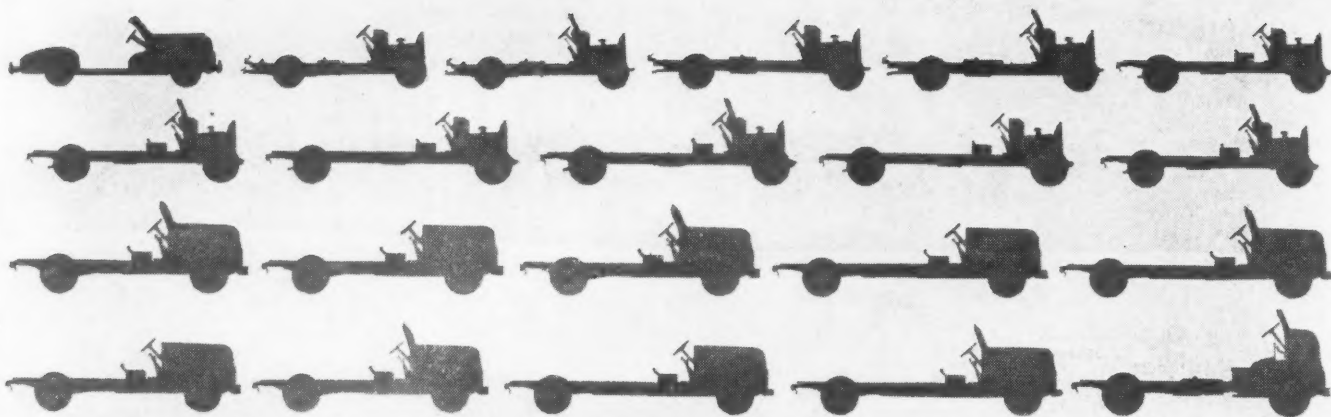
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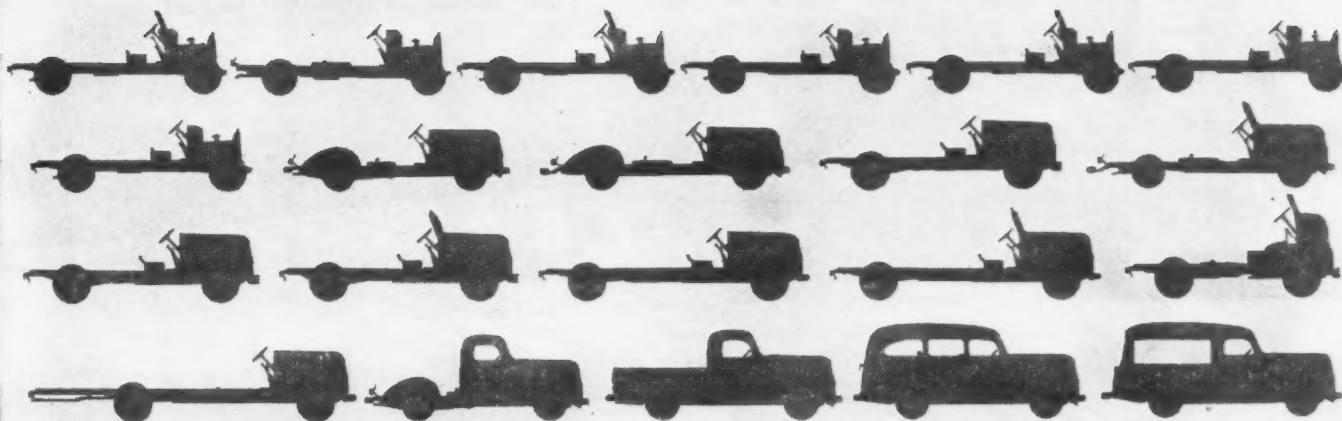
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■ 682



*Count 'em . . .*  
**99 MODELS**  
*on 9 wheelbases*  
*The right truck for  
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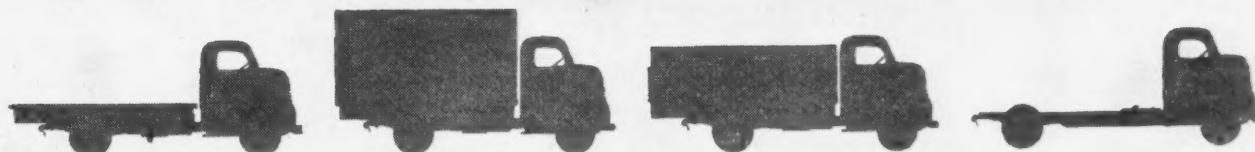
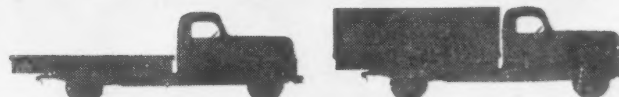
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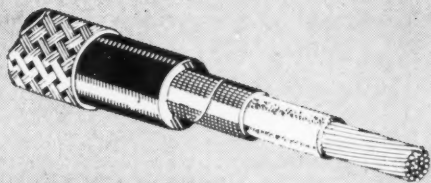
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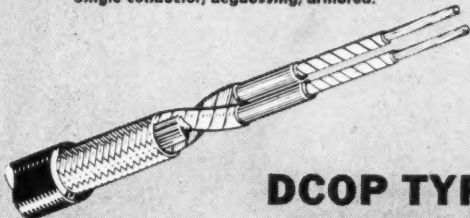
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Orleans • New York • Oklahoma City  
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157-6



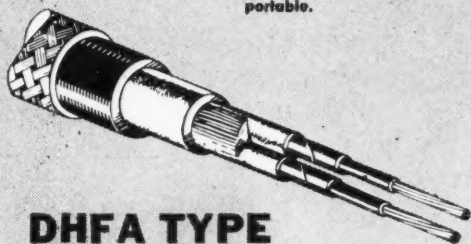
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Single conductor, degaussing, armored.



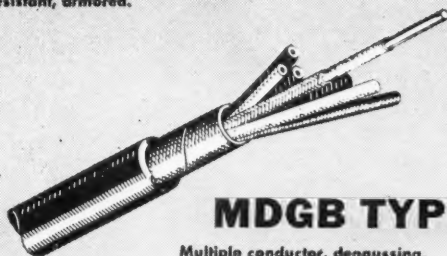
### DCOP TYPE

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**MINES, OIL WELLS, RAILWAYS, QUARRIES,  
CONSTRUCTION WORK, ETC.**

Whenever rugged electrical cable of single or multiple conductor type is needed and Board of Underwriters' Approval is not a requirement this cable is ideal. It was built to rigid specifications by well known makers to meet the special performance requirements demanded for Navy and Maritime service during the war. This cable is available in large quantity at prices established to move the material into industry's hands quickly. Simply call your nearest W.A.A. office—or send for the special listing described below.



## Also LARGE QUANTITIES of AIRCRAFT CABLE ANJC

This cable was manufactured to rigid specifications of both the Army and Navy to meet performance needs with minimum weight and was largely used in aircraft.

**FOR SPECIFICATIONS  
GET THIS  
SPECIAL  
LISTING**



Write, wire or phone any W.A.A. office and ask for this special offering of surplus United States Navy and Maritime Shipboard Cable.

#### EXPORTERS:

Most surplus property is available to the export market. Merchandise in short supply is withheld from export, and if such items appear in this advertisement they will be so identified by an asterisk.

All Shipboard Cable is subject to priority regulations. VETERANS OF WORLD WAR II are invited to be certified at the War Assets Administration Certifying Office serving their area and then to purchase the material offered herein.

# WAR ASSETS ADMINISTRATION

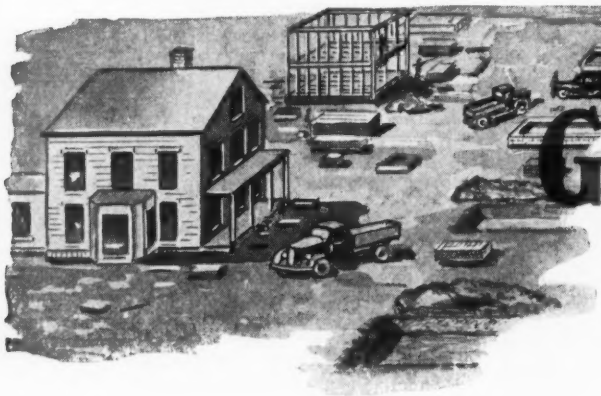
**GOVERNMENT  
OWNED  
SURPLUS**

Offices located at: Atlanta • Birmingham  
Boston • Charlotte • Chicago • Cincinnati  
Cleveland • Dallas • Denver • Detroit • Fort  
Worth • Helena • Houston • Jacksonville  
Kansas City, Mo. • Little Rock • Los Angeles

Louisville • Minneapolis • Nashville • New  
Orleans • New York • Oklahoma City  
Omaha • Philadelphia • Portland, Ore.  
Richmond • St. Louis • Salt Lake City • San  
Antonio • San Francisco • Seattle • Spokane

691-1

# WHEN HOUSES ARE GOING UP



That's the time to look up your nearest AED Member.

He knows and will recommend the right machines for excavation, foundation, erection, grading and landscaping. You can depend upon

## ASSOCIATED EQUIPMENT DISTRIBUTORS

Those who show the AED emblem represent reliable construction machinery organizations from coast to coast, in Canada and in Mexico.

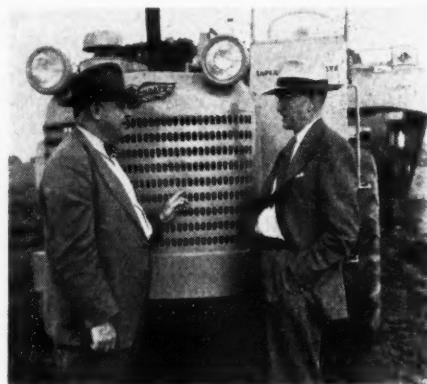
AED Members maintain service shops with trained experts ready day or night, to keep machines going despite mishaps.

BUY SAFELY—  
BUY FROM AN  
AED MEMBER



**ASSOCIATED EQUIPMENT DISTRIBUTORS**  
1928 EYE STREET, N.W.  
WASHINGTON 6, D.C.

## EQUIPMENT MEN *and Their Companies*



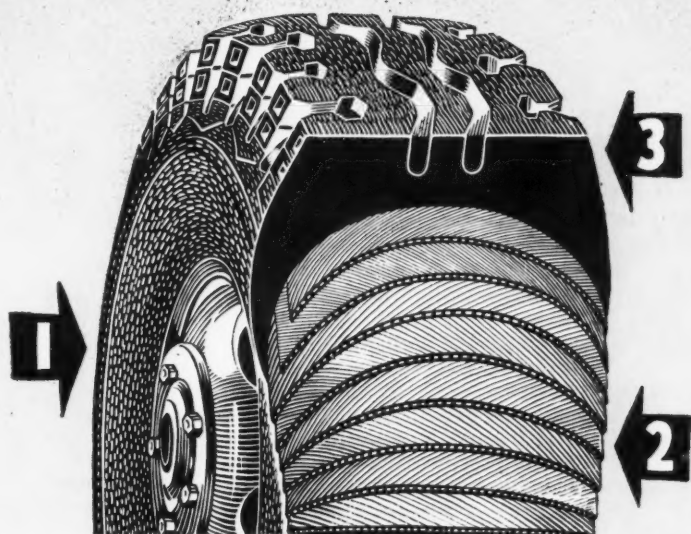
Ed Galvin (left) executive vice president and general sales manager of LaPlant-Choate explains the new "LPC" rubber-tired prime mover to Frank J. McBath, president of Columbia Equipment Co., newly appointed distributor. Mr. McBath is national president of the Associated Equipment Distributors.

Hercules Motors Corp., Canton, Ohio, has opened a direct factory branch in Los Angeles, Calif. W. W. Cromley is vice-president in charge of West Coast operations. Distributors appointed on the West Coast include Loggers & Contractors Machinery Co., Portland, Ore.; Diesel Motor & Equipment Co., Phoenix, Ariz.; Star Machinery Co., Seattle, Wash.; Bay Engine & Parts Co., San Francisco, Calif.; Engine Supply Co., Denver Colo.; Sawtooth Co., Boise, Ida.; Hayes Mfg. Co., Vancouver, B. C., Canada; Brown-Bevis Equipment Co., Los Angeles, Calif.; and H & B Sales Co., Long Beach, Calif.

Inland Steel Co. announces the closing of its Cincinnati office, effective August 15, 1946. Several northwestern counties of the state of Ohio, formerly handled by this office, will be transferred to the company's Detroit office. The remainder of the territory, which includes such cities as Cincinnati, Dayton and Columbus, will be transferred to the company's Indianapolis office. John S. Gregg, district sales manager, will be transferred to the company's Milwaukee office as assistant district sales manager. L. W. Schellhammer will become resident salesman in Cincinnati, operating from the Indianapolis office.

# TOUGHER PEACETIME TIRES

*proved by bruising  
combat service*



## ARMSTRONG *Rhino-Flex* TRUCK TIRES OFFER 3 IMPORTANT TIRE DEVELOPMENTS

- 1. NEW TOUGHER CARCASS**—Armstrong Tires wear longer, resist more shock; last and last!
- 2. NEW FLEXING FABRIC**—Tougher cords "give" smoothly with impact; snap back smoothly to cushion rebound.
- 3. NEW FLATTER TREAD**—More rubber on the road; you get safer, surer stops, quicker starts, cooler running.

*Rhino-Flex Carcass* makes Armstrong Truck Tires roll with the punch . . . snap back smoothly, impact after impact . . . gives you greater safety and longer mileage!

**WHAT A BEATING** a tire takes when it strikes a bump! It's got to "give" to take it. It has to snap back smoothly to cushion the load and reduce shock to chassis, body and crew.

What's so tough about Armstrong Tires that they can take this kind of beating mile after mile? It's the carcass—the most important single factor in a tire. Armstrong worked overtime through the war to develop the toughest tire carcass possible for combat vehicles.

The Rhino-Flex Carcass was Armstrong's answer and according to combat reports, it produced the toughest Armstrong Tire ever built—with a BIG PLUS in smoother snap-back flexibility and cooler running!

Now you can get this great new super truck tire, proved tougher in bruising combat service. Armstrong Rhino-Flex Truck Tires are sold coast to coast. See them! Compare them with any other tire ever made. Roll your trucks on Armstrongs and we know you'll be convinced they're the safest, toughest, smoothest and coolest running truck tires ever made.

Plants: Natchez, Miss. • Des Moines, Iowa • Sales Offices: West Haven, Conn.

# ARMSTRONG *Rhino-Flex* TIRES

Manufacturers of Quality Tires and Tubes Since 1912 • General Offices and Plant—460 Elm Street, West Haven 16, Conn.

## Easy Way to Keep Service Shop Floors Safe to Walk On!

Keeping the floors of your service shop free of grease, efficient-looking and non-slippery is an inexpensive way to gain and hold employees goodwill. However, proper floor maintenance is not always easy to handle especially during these days of heavy schedules . . . insufficient help. Under such conditions, therefore, your best bet is to install the new DRY method of floor maintenance with

## OAKITE COMPOSITION No. 71

Merely scatter this granular material freely where needed. Note how quickly it gets to work blotting up oil, grease and similar surface accumulations. Your floors will remain clean, dry, safe to walk on.

### SEND FOR FREE DETAILS!

Your nearby Oakite Technical Service Representative will welcome the opportunity to demonstrate the remarkable effectiveness of Oakite Composition No. 71. Drop us a line for descriptive data today. No obligation, of course!

**OAKITE PRODUCTS, INC.**  
248 Thames Street, New York 6, N. Y.  
*Technical Service Representatives Located in All  
Principal Cities of the United States and Canada*

**OAKITE** *Specialized*  
**CLEANING**

**R. G. LeTourneau, Inc.** of Peoria, Ill., has received for the second time this year one of the nation's highest industrial advertising honors. The National Industrial Advertisers Association named the firm a winner in the product advertising division of its 23rd annual conference and exhibit "for the advertising campaign which, in the opinion of the jury of awards, is conspicuous for the excellence of its planning and execution."

Three changes in executive personnel of the Dravo Corp. have been announced, as follows: **W. D. Bickel**, manager of the power department; **T. L. Hartman**, manager of the piping department of the machinery division; **W. G. Greer**, assistant labor relations manager for the corporation.

**Air Vice Marshal G. A. Sully**, CB-AFC-former member of the R.C.A.F. Staff has started a plant at Goderich, Ont. for manufacturing road-building equipment, graders, bulldozers, etc.

**American Institute of Steel Construction, Inc.**, announces the opening of its district office, 1617 Pennsylvania Blvd., Philadelphia 3, Penna. **Henry J. Stetina** is district engineer.

**Smith W. Storey** of Chicago, president of Consolidated Cement Corp., has been elected to succeed the late John L. Senior as president of Florida Portland Cement Co., Signal Mountain Cement Co., and Trinity Portland Cement Co. Mr. Storey has served as executive vice-president of these companies, which have plants in Michigan, Kansas, Florida, Tennessee and Texas. **Howard Miller**, also of Chicago, secretary-treasurer of Consolidated Cement Corp., becomes vice-president and treasurer of the other three companies.

**H. W. Lewis Equipment Co.** announces that the manufacturing phase of its business, which consists of the making of the Pierce Bear tandem road rollers and other construction equipment, has been incorporated under the name of Lewis Manufacturing Co. and will continue to be located at 415 Hoefgen Ave., San Antonio, Texas.

Look for the Arm-and-Hammer  
**ARMSTRONG BROS.**  
BETTER PIPE TOOLS



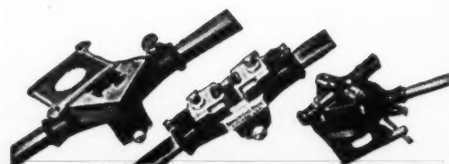
## Threads of Lathe-cut Smoothness

Machined from special oil-tempered Chrome-Vanadium Tool Steel, with hob-cut teeth "backed-off" from their ground cutting points; with accurately figured cutting angles and chaser rakes and ample chip clearance, these finer dies produce threads of lathe cut smoothness. They cut freely, faster, without drag and spin off the pipe without tearing or jamming.

Hardened, drawn, tempered and tested, they hold their keenness and free-cutting qualities.

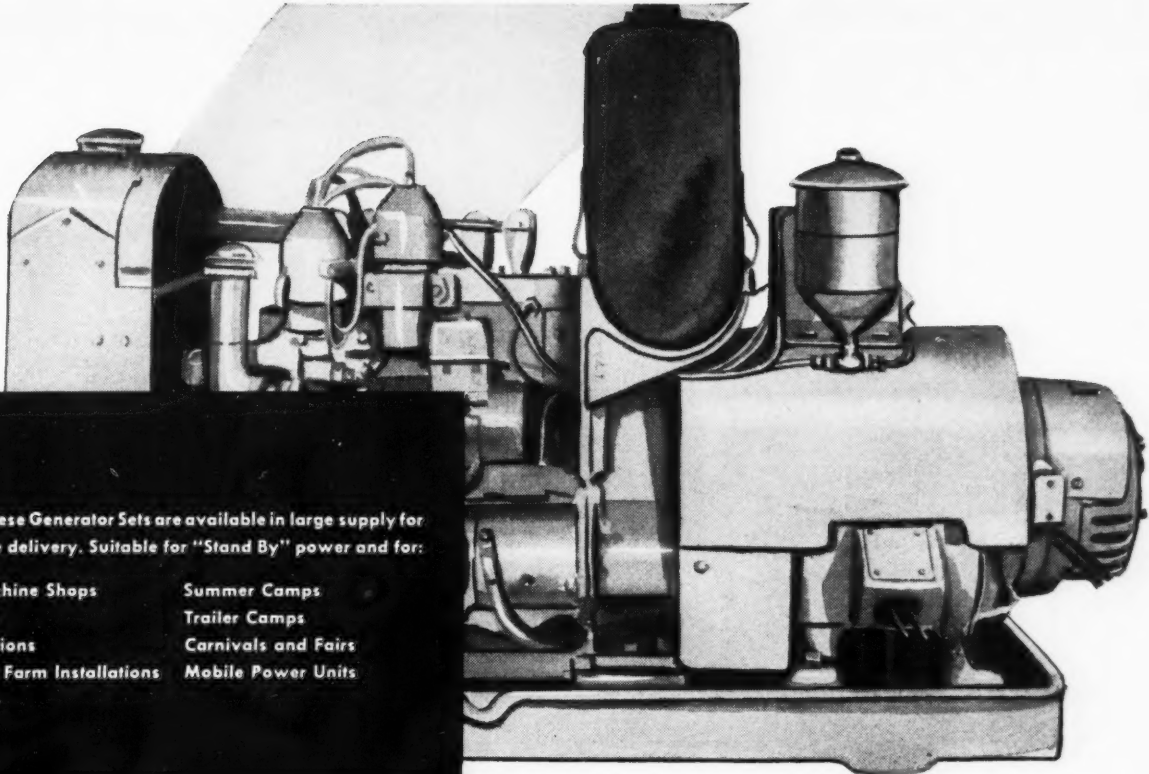
They fit all standard made Stocks or Threaders—"Adjustable," "Receding" or "Solid"—come in all pipe sizes from 1/4" to 2".

**ARMSTRONG BROS.** Stock and Receding Threaders are improved in design, accurately balanced and machined inside and out.



**ARMSTRONG BROS. TOOL CO.**  
"The Tool Holder People"  
334 N. FRANCISCO AVE. • CHICAGO, U.S.A.

Eastern Sales Office: 199 Lafayette St., N. Y. 12  
Pacific Coast Whse. & Sales Office  
1275 Mission St., San Francisco 3, Calif.



Some of these Generator Sets are available in large supply for immediate delivery. Suitable for "Stand By" power and for:

Small Machine Shops	Summer Camps
Saw Mills	Trailer Camps
Radio Stations	Carnivals and Fairs
Rural and Farm Installations	Mobile Power Units

✓ 120 VOLTS TO 480 VOLTS

✓ 1½ KW TO 30 KW

✓ FROM \$250 TO \$2500

All Portable Generator Sets are subject to priority regulations. **VETERANS OF WORLD WAR II** are invited to be certified at the War Assets Administration Certifying Office serving their area, and then to purchase the equipment offered herein.

#### EXPORTERS:

Most surplus property is available to the export market. Merchandise in short supply is withheld from export and if such items appear in this advertisement they will be so identified by an asterisk.

## PORTABLE

# Generator SETS

### GOVERNMENT-OWNED SURPLUS

Many Generator Sets, produced by well known manufacturers, are now available from government-owned surplus. The majority of them are new, unused sets, and include the following types:

Gasoline engine driven	Alternating current, 50 and 60 cycle, single and three phase	120 Volts to 480 Volts 1½ KW to 30 KW From \$250 to \$2500
Diesel engine driven		
Direct current 120-250 Volts		

Used sets in good condition at further reduced prices. All items subject to prior sale.

#### HOW TO PURCHASE:

- 1 If you can claim a priority obtain your priority certificates at the nearest W.A.A. Certifying Office, (contact the W.A.A. Office below for Certifying Office address) and make application to purchase.
- 2 If you do not have priority status simply call any W.A.A. Office below; state the approximate KW rating you desire and the type of machine. You will be told where the machines you wish may be seen and how to complete purchase.
- 3 If the equipment you wish is not available in your local W.A.A. Regional Office—ask to have national inventories checked by the W.A.A. Inter-Regional Division of your local office and wait for notification of availability.

# WAR ASSETS ADMINISTRATION

## GOVERNMENT OWNED SURPLUS

Offices located at: Atlanta • Birmingham • Boston • Charlotte • Chicago • Cincinnati • Cleveland • Dallas • Denver • Detroit • Fort Worth • Helena • Houston • Jacksonville • Kansas City, Mo. • Little Rock • Los Angeles

Louisville • Minneapolis • Nashville • New Orleans • New York • Oklahoma City • Omaha • Philadelphia • Portland, Ore. • Richmond • St. Louis • Salt Lake City • San Antonio • San Francisco • Seattle • Spokane

655-1

# STANDARD ENGINEERS NOTEBOOK



## Shock-absorbing grease reduces shackle wear

Because it contains a special stringiness agent that keeps a tenacious lubricant film on shackle and other chassis bearings, RPM Chassis Grease will eliminate squeaks and cut wear to a minimum.

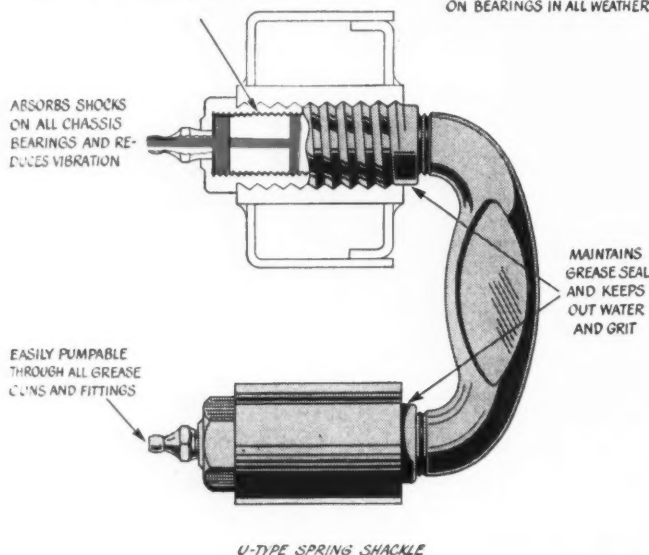
Besides using it on chassis bearings, many truck and bus operators lubricate heavy-duty tractor fifth-wheel bearing surfaces with RPM chassis Grease.

The tough lubricant film acts like a cushion. It absorbs countless shocks imposed on bearings and will not rupture even under an overload. This unusual ability also reduces vibration and makes vehicles ride smoother.

Highly resistant to heat and moisture, RPM Chassis Grease seals out water and grit on and at the edges of bearings. It may be applied easily in cold weather and protects vital wear-points in summer.

RPM CHASSIS GREASE FILM WILL NOT BREAK DOWN UNDER PRESSURE OF SHOCKS AND JOLTS

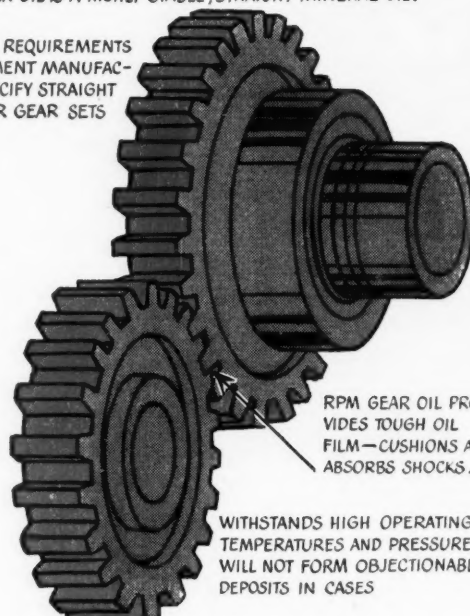
RPM CHASSIS GREASE RESISTS HIGH TEMPERATURES—STAYS ON BEARINGS IN ALL WEATHER



For additional information and the name of your nearest Distributor, write Standard of California, 225 Bush Street, San Francisco 20, Calif.; The California Oil Company, 30 Rockefeller Plaza, New York 20, N. Y.; The California Company, 17th and Stout Streets, Denver 1, Col.; Standard Oil Company of Texas, El Paso, Texas.

RPM GEAR OIL IS A HIGHLY STABLE, STRAIGHT MINERAL OIL.

MEETS GENERAL REQUIREMENTS OF GEAR EQUIPMENT MANUFACTURERS WHO SPECIFY STRAIGHT MINERAL OIL FOR GEAR SETS



CONTAINS MOST EFFECTIVE FOAM INHIBITOR KNOWN

## Straight mineral oil meets gear-maker requirements

To meet the need for a high quality lubricant for certain transmission gears and other gear sets where a straight mineral oil is recommended, RPM Gear Oil was developed. It is made from the finest paraffinic lubricating oil stocks.

RPM Gear Oil deposits a tough lubricant film on gear teeth and bearings that prevents metal-to-metal contact in all operating conditions. It cools the surfaces and carries away heat. It extends gear and bearing life.

Because RPM Gear Oil is extremely stable, it minimizes trouble from objectionable deposits forming in cases. It eliminates foaming trouble because it contains the most effective foam inhibitor known.

RPM Gear Oil is made in three viscosity grades: SAE 90, 140, and 250. One of these grades will flow freely over gears and their bearings in every atmospheric temperature condition.

FOR EVERY NEED A **STANDARD OF CALIFORNIA** JOB-PROVED PRODUCT

# WILLIAMS'S *Superior*

## CARBON STEEL WRENCHES

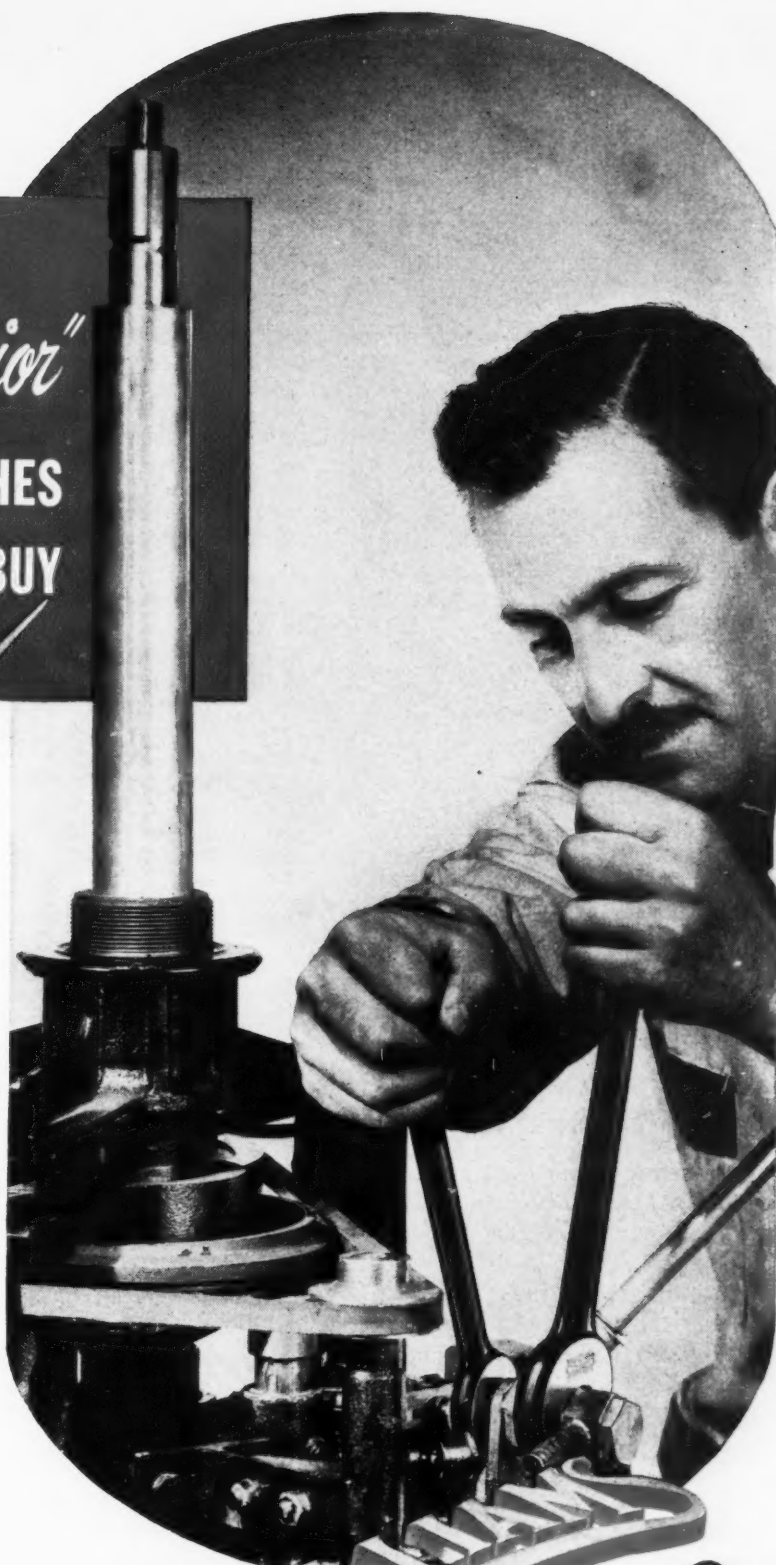
*are* INDUSTRY'S BEST BUY

● Wrenches represent industry's largest hand tool expenditure!

Williams "Superior" Carbon Steel Wrenches represent industry's best "buy" because they deliver more wrench value per dollar. Drop-forged from a selected grade of carbon steel and specially processed, "Superiors" have twice the strength of old-style carbon wrenches. They cost approximately half as much as alloy steel wrenches, and average 93% as strong, pattern for pattern and size for size.

Available in 50 patterns, more than 1,000 sizes. Sold by leading Industrial Distributors everywhere.

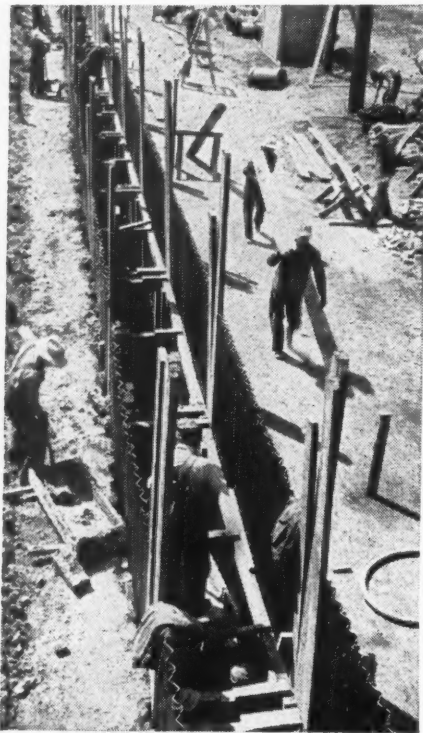
J. H. WILLIAMS & CO., BUFFALO 7, N. Y.



**WILLIAMS**  
**DROP-FORGINGS AND**  
**DROP-FORGED TOOLS**



## JOBS GO FASTER... with steel sheeting



In many cases, ARMCO Sheeting can be driven the full depth before excavating.

Let's see how ARMCO Sheeting does it—

This sturdy, light-weight sheeting goes in fast and easily because of its smooth surface and small displacement. It can readily be pulled and used over and over again, thus saving time and materials.

Another important advantage of ARMCO Sheeting is that you can order in the exact gage and type you need. The interlocking type, used where watertightness is desired, has a covering width of 14 inches and comes in 12 to 7 gage. The flange type, commonly used in sheeting trenches, is 12 inches wide and comes in 12 gage and heavier. Standard lengths of both types run from 6 to 20 feet or more. Write for complete information. Armco Drainage & Metal Products, Inc., and Associated Companies, 105 Curtis St., Middletown, Ohio.



## ARMCO SHEETING

On July 1, 1946 the J. M. & L. A. Osborn Co., Cleveland, Ohio, one of the oldest sheet metal manufacturers in the country, changed its name to Milcor Steel Co. The Osborn Co. was purchased by Milcor in December, 1944.

Frederick W. Taylor has resigned as district manager of the Chain Belt Co.'s Atlanta office to become general manager of the Augusta Iron Works, Augusta, Ga. Mr. Taylor will be succeeded by James S. Moore and Orville Lorenze will continue with the Atlanta office. Augusta Iron Works recently purchased the Lombard Iron Works which has been in continuous operation since 1856.

The Graver Tank & Mfg. Co., Inc., of East Chicago, Ind., has announced the appointment of Edward W. Welp to the position of sales manager of water conditioning equipment. Mr. Welp has spent 32 years with the firm in every phase of research, design and construction of water conditioning equipment.

### ... Meet the UNSEEN GUARDIAN

SYMBOL OF  
SISALKRAFT  
PRODUCTS



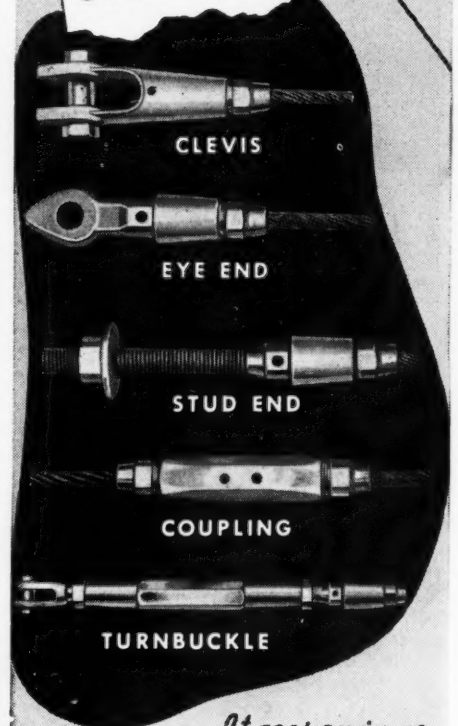
✓ **SISALKRAFT**  
... waterproof reinforced  
building paper

✓ **SISALATION**  
... reflective insulation and  
moisture-vapor barrier

✓ **COPPER ARMORED  
SISALKRAFT**  
... Sisalkraft plus pure elec-  
tro deposit copper

THE SISALKRAFT CO.  
CHICAGO, ILLINOIS

**Stronger THAN  
THE WIRE ROPE  
ITSELF... this  
Electroline -FIEGE  
CONNECTOR**



*It goes on in no time—and hangs on for all time: this simple, husky device. Simply put the cable end through the sleeve, spread the strands, insert and drive in the plug, apply the socket and set in tight. Through the ingenious inspection hole you can see by the twisted strands that the joint is perfect.*

These better connectors dampen vibration, prolong wire rope life. These advantages, plus low cost installation and life-time service, have made them the standby in the shipbuilding and construction industries, and wherever wire rope and cables are used. Available through your mill supply distributor.



MANUFACTURED SOLELY BY  
**Electroline Company**

4121 SOUTH LA SALLE STREET  
CHICAGO 9, ILLINOIS



# OWNERS OPERATORS

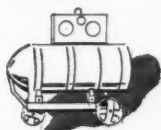
**IMMEDIATE  
DELIVERY**

## ARC WELDERS...

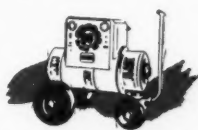
## RELATED EQUIPMENT

New and used arc welders of well known makes, including Hobart, Lincoln and Westinghouse, in 200, 300 and 400 ampere ratings, either AC or DC, are now included in government-owned surplus and are available for immediate purchase and delivery.

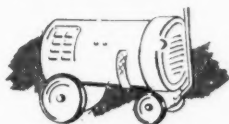
Here you will find the equipment to modernize your shop—to replace worn-out or obsolete welders—to expand your business.



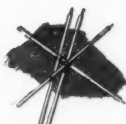
**Lincoln**—In all models and most ratings. Hundreds in the popular 300-400 Ampere size.



**Hobart**—Standard models of this make available in large quantities and most ratings.



**Westinghouse** — Portable models available in limited quantities.



**Electrodes and Welding Rods** — Millions of pounds available in all types and sizes.

**EXPORTERS:** Most surplus property is available to the export market. Merchandise in short supply is withheld from export, and if such items appear in this advertisement they will be so identified by an asterisk.

All arc welders are subject to priority regulations. **VETERANS OF WORLD WAR II** are invited to be certified at the War Assets Administration Certifying Office serving their area, and then to purchase the material offered herein.

Prices are low, based on the type and condition of the equipment. The inventory is located at various points throughout the country. It is broad and includes the machines you need. To obtain complete information on the availability, location and condition of the equipment you want fill out the coupon and send it to your nearest War Assets Administration Regional Office.

For full information clip and mail this coupon to:

War Assets Administration:

Please send me complete information on the availability, condition and location of the following types of equipment.

... Hobart Arc Welders ... Westinghouse Arc Welders  
... Lincoln Arc Welders ... Electrodes and Welding Rods

Arc Welding Equipment: AC ... DC ...  
Electric Motor Driven: Volts ... Phase ... Cycles ...  
Transformer Type: Volts ... Phase ... Cycles ...

Name .....

Firm .....

Address .....

City ..... State .....

# WAR ASSETS ADMINISTRATION

**GOVERNMENT  
OWNED  
SURPLUS**

Offices located at: Atlanta • Birmingham  
Boston • Charlotte • Chicago • Cincinnati  
Cleveland • Dallas • Denver • Detroit • Fort  
Worth • Helena • Houston • Jacksonville  
Kansas City, Mo. • Little Rock • Los Angeles

Louisville • Minneapolis • Nashville • New  
Orleans • New York • Oklahoma City  
Omaha • Philadelphia • Portland, Ore.  
Richmond • St. Louis • Salt Lake City • San  
Antonio • San Francisco • Seattle • Spokane

649-1

# Your Trucks KEEP MOVING...

## Your Loader Lasts—for Years

- 3, 5, or 8 yds. capacity—your drivers don't wait.
- Alloy steels... Haiss-designed heavy-duty transmission... clutches and gears running in oil mean stamina and long life.

All These Add up to  
"Lowest Cost per Yard"



# HAISS

## BUCKET LOADERS

Gen. Haiss Mfg. Co., Inc., 139th St. and Canal Place, New York (51) N. Y.

## FOR FRESH DESIGNS OF LIVEABLE HOUSES

—see this illustrated ideabook

Covers exteriors, interiors, floor plans, gardens, details, etc.

Here is a source book of ideas for home designers, builders and homeowners interested in new construction or remodeling. In an entirely new approach, the book considers in detail not only the exterior and interior of houses, but the facilities for outdoor living and the relation of a house to its site. Crammed with photos and plans, it illustrates a variety of features which offer the most in convenience and attractiveness.

### Just Out THE KEY TO YOUR NEW HOME

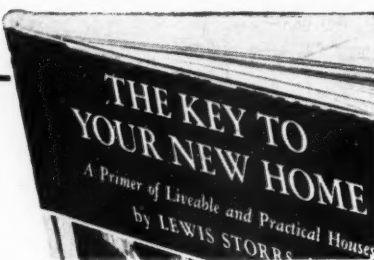
A Primer of Liveable and Practical Houses

Edited by Lewis Storrs, Jr. 128 pages, 9 1/2 x 12 3/4, over 200 photographs and architects' floor plans, \$2.75.

Beginning with the inside of the house—stressing practical liveability as well as beauty of line and proportion—the book covers each detail which must be considered in planning or remodeling a house. It pictures and explains ceilings, lighting, stairways, closets, storage, garages, etc.

Since outdoor living is becoming widely popular, an entire section gives valuable, sound suggestions for sleeping porches, terraces, farm pavilions, garden planning, etc.

Examples of low, medium and high-priced houses are given, representing different styles of American architecture. Combinations and adaptations of both traditional and modern designs, as well as a few outright modern ones, are included. Actual floor plans are given for 53 different houses.



#### Gives you specific ideas for

- entrances
- making a house seem lower or larger
- living rooms
- guest rooms
- bathrooms
- narrow, corner or hillside lots
- cupboards and shelving
- miscellaneous closets
- laundries
- sun rooms
- 1, 1 1/2, 2 story houses
- cellarless and weekend houses
- porches and patios
- bar, clothes chute, workshop
- garage, motor court, drives
- windows, bay windows
- balconies
- exterior and interior stairs
- walls, fences
- fireplaces, bookshelves, doors
- built-in furniture and many other features

McGraw-Hill Book Co., 330 W. 42nd St., N.Y. 18, N.Y.  
Send me Storrs—The Key to Your New Home for 10 days' examination on approval. In 10 days I will send \$2.75 plus few cents postage, or return book postpaid. (Postage paid on cash orders.)

Name

Address

City and State

Company

Position  CM 9-46

For Canadian price write Embassy Book Co., 12 Richmond St. E., Toronto 1

**EXAMINE 10 Days FREE**  
Mail Coupon

A. M. Byers Co. of Pittsburgh, Pa., has announced the appointment of **Buckley M. Byers** as assistant manager of the company's New York office at 30 Rockefeller Plaza. Mr. Byers will be in charge of export sales. He recently returned after nearly four years' service in the U. S. Navy.

**Robert T. Miller** has been appointed manager of the industrial division of Masonite Corp. and is charged with all industrial activities of Masonite Presdwood, die stock and other semi-plastic hardboards. **George Syversen** will take over the duties of chief sales engineer. **Donald E. Allen** has been appointed advertising manager and director of public relations. **Elmer J. Graebner** has been promoted to sales manager of the Cellufoam products division.

★ ★ ★

## Accounting for Contractors

(Continued from page 106)

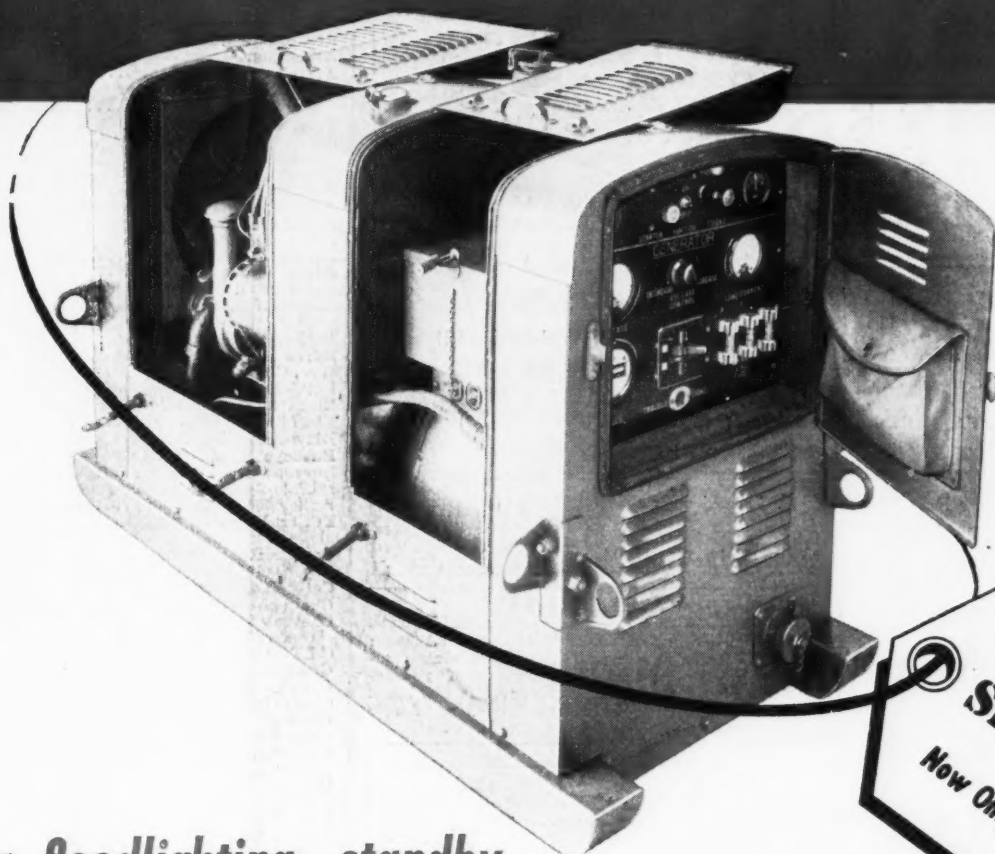
some and making on the others, and never know the difference, because at the end of the year you know that you have made money. Just think what it will mean to you if you know the **type** of jobs on which you lose money. You can then revise your quotations or leave such jobs alone and thus make more profit.

(4) Knowing your overhead expenses is absolutely essential. Overhead is a stumbling block over which two out of every three business failures have stumbled. Many a contractor started in business operating from his own home where his overhead was very small. He would then add a percentage to each estimate to take care of his profit, and that was that.

Later he broadened out. He opened up a place of business. He had rent, telephone, clerical and other expenses. Perhaps he had one or many trucks or delivery wagons. Obviously he had to get these overhead expenses back in

(Continued on page 191)

# NOW AVAILABLE!



**PRICES  
SLASHED!**  
Now Only \$480

**For floodlighting, standby power, mobile use on construction jobs. Produces 3,000 watts of light.**

This 3 KVA all-purpose engine-generator set that serves as prime source of electricity or fits into present circuits as a standby unit is now available for immediate shipment. Built to U.S. Army specifications, the units have been used only for test runs or standby service. Priced below the original cost, this 3 KVA 3-phase or single-phase unit is sturdy and fully enclosed against weather.

**PARTS:** Ample supply of parts is available.

#### SPECIFICATIONS:

**ENGINE:** Gasoline, 4-cylinder Hercules model ZXB, develops 11 horsepower at generator speed.

**GENERATOR:** 3 KVA AC., 115, 120 or 125 volts, 3-phase or single-phase, 60-cycle at 1200 rpm, 50-cycle at 1100 rpm.

**EQUIPMENT:** Self-starter which operates on a vehicle-type, 6 volt battery (battery extra), oil filter, oil bath air cleaner, manual choke, gasoline gauge, gas strainer. *Control panel:* Main switch, circuit breaker and fuses, frequency meter, voltmeter and ammeter, charging ammeter, oil pressure gauge.

**WEIGHT:** 900 lbs. Compactly built, the unit consists of engine, generator, switch board, and gas tank, all mounted on skids for easy transportation.

**HOW TO BUY:** List price of \$480.00 f.o.b. Sidney, Nebraska, Anniston, Alabama or Los Angeles, California. Terms, cash; or 10% cash with order, balance sight draft bill of lading. 30% discount to dealers.

**THESE WON'T LAST — ORDER NOW! Write, wire or phone:**

**SOLD  
BY**

**GREENE-HALDEMAN COMPANY, INC.**

*World's Largest Chrysler Dealer*

1150 SO. FLOWER ST., LOS ANGELES 15

## WHERE TO BUY

### COMPLETE WELL POINT SYSTEMS WILL DRY UP ANY EXCAVATION

*Faster—More Economically*

Write For Job Estimate and 32 page Catalog

### COMPLETE

MACHINERY & EQUIPMENT CO., Inc.

36-38 11th St., Long Island City, N. Y.

Tel. IRonsides 6-8600

Branch: Third Avenue & Adams St., Gary, Indiana  
Telephone: Gary 23965



STERLING  
QUALITY

### STERLING PUMPS



CHOICE  
OF  
LEADING  
CONTRACTORS  
EVERYWHERE

SIMPLE  
DEPENDABLE  
RUGGED  
•  
WRITE NOW

**STERLING MACHINERY CORPORATION**  
405 Southwest Blvd., Kansas City, Mo.

### Waterproof with Formula No. 640

A clear liquid which penetrates 1" or more into concrete, brick, stucco, etc., seals—holds 1250 lbs. per sq. ft. hydrostatic pressure. Cuts costs: Applies quickly—no mixing—no cleanup—no furring—no membranes. Write for technical data—free sample.

HAYNES PRODUCTS CO., OMAHA 3, NEBR.

**METAL-WINDOWS**  
(STEEL-ALUMINUM-BRONZE)  
LARGE STOCK—ALL TYPES  
STEEL SASH SALES & SERVICE  
Weehawken New Jersey

## SEARCHLIGHT SECTION

(Additional Searchlight Advertising on page 189)

### CONSOLIDATED STEEL CORPORATION LOS ANGELES NEEDS

DRAFTSMEN—DETAILERS  
DRAFTSMAN—CHECKERS  
EXPERIENCED IN  
STRUCTURAL STEEL  
FABRICATION OF  
BUILDINGS, BRIDGES, ETC.  
AND IN PLATE STEEL  
FABRICATION OF PRESSURE  
BOILERS AND TANKS, ETC.  
TOP PAY PERMANENT

### WRITE CONSOLIDATED STEEL CORPORATION

Personnel Department

P. O. BOX 6880

EAST LOS ANGELES BRANCH  
LOS ANGELES 22, CALIFORNIA

### USED CONCRETE MIXERS

2—Knickerbocker, skid mounted, 1 yard mixers with power skip and water tank  
1—Rex, on 4 steel wheels, 1/2 yard, with power skip and water tank. Only slightly used and in A-1 condition.

Offered subject to inspection and prior sale

L. D. SEELY

MUNICIPAL SUPPLIES & EQUIPMENT  
EATONTOWN, NEW JERSEY

### FOR SALE

New Syntron pave and concrete hammer, perfect condition. No hose. No trailer. Powerful one man operated, can be carried rear of car inside. 11 extra attachments to Bust, Cut, Dig, Tamp. Used one wk., cost \$426.00, sell \$300.00.

ANTHONY DeFRANCESCO

112 ELM ST., DUNMORE, PA., NR. SCRANTON

### FREE BULLETIN

"SURPLUS PROPERTY"—How-What-Where:  
A 32 page 5x8 indexed booklet giving complete information on the purchase of government surplus in all available classifications. Write the Office of Information—War Assets Administration, Washington 25, D. C.

### Heavy Construction Equipment

4—4 yard Koehring Concentric  
Tilting type heavy duty electric  
driven Mixers.  
3 ton-4 ton Mancha battery Locomotives, 36" gauge.  
1—200 ton Noble Batch Plant.  
1—350 ton Aggregate Plant.  
200'-500' 24" Belt Conveyors complete with motors.  
7' x 23' x 7/8" thick Manganese  
Trommel Screen  
42" x 31' Pan Feeder  
125' Stacker Frame  
1—1 1/4 yard Bucyrus-Erie Combination shovel & crane.

Subject to inspection and prior sale.

**Sundfelt Equipment Company**  
3422 First Ave., S. Seattle 4, Wash.  
Main 1474

### FOR SALE

SHOVEL FRONT—1 1/2 Yd. for Lima 602. 21' Boom—18' Stick. Brand New \$3850.00.  
SHOVEL FRONT—3/4 Yd. for Northwest Model 20. Excellent Condition. \$1100.00.  
SCRAPER—3 1/2 Yd. La Plant-Choate. Pull Type. Hyd. Operated. Used. Good Condition. \$525.00.  
CLAMSHELL BUCKET—1 1/2 Yd. for Material Handling. \$350.00.

### Service Equipment Co.

1630 29th St., N. W., Canton, Ohio  
Phone 2-1529

## Advertisers in this issue

Adams Manufacturing Co., J. D.	30, 31
Allis-Chalmers	2, 3
Aluminum Company of America	21
American Bosch Corp.	12
American Cable Div., American Chain & Cable Co., Inc.	3rd Cover
American Hoist & Derrick Co.	174
American Steel & Wire Co.	44
Ames-Baldwin Wyoming Co.	160
Armco Drainage & Metal Pds, Inc.	186
Armstrong Bros. Tool Co.	182
Armstrong Rubber Company	181
Associated Equipment Distributors	180
Athey Products Corp.	45
Atkins & Co., E. C.	81
Atlas Powder Company	38
Atlas Steel Construction Co.	24
Austin-Western Company	80
Barber-Greene Company	62
Barco Mfg. Co., Not Inc.	127
Bay City Shovels, Inc.	51
Bethlehem Steel Company	6, 70, 131
Black & Decker Mfg. Co., The	60
Blackhawk Mfg. Co.	165
Blaw-Knox Div., Blaw-Knox Co.	29, 138
Buckeye Traction Ditcher Co.	75
Bucyrus-Erie Co.	123
Buffalo-Springfield Roller Co., The	156
Butler Bin Company	151
Butler Engr. & Mfg. Co.	134
Carlyle Rubber Company	167
Carver Pump Co., The	168
Caterpillar Tractor Company	48, 49
Chain Belt Company	36
Chevrolet Motor Div., General Motors Corp.	176, 177
C.I.T. Corporation	37
Cleveland Trencher Co., The	166
Clipper Mfg. Co.	150
Clyde Iron Works, Inc.	76
Complete Machy. & Equip. Co., Inc.	190
Consolidated Steel Corp.	190
Construction Machinery Co.	163
Contractors Pump Bureau	152
Cummins Engine Company	136
Dixon Valve & Coupling Co.	191
Dodge Div., Chrysler Corp.	34, 35
Duff-Norton Mfg. Co., The	145
Electric Tamper & Equipment Co.	126
Electroline Company	186
Embury Mfg. Co.	157
Euclid Road Machinery Co., The	7
Firestone Tire & Rubber Co., The	53
Ford Motor Co.	59
Fram Corporation	144
Gar Wood Industries, Inc.	27, 141
Gardner Denver Co.	72
General Electric Company	13
General Excavator Company	147
General Motors Corporation; (Chevrolet Motor Division)	176, 177
(Detroit Diesel Engine Div.)	74
Goodrich Co., B. F.	9
Goodyear Tire & Rubber Co., The	84
Gorman-Rupp Co., The	50
Greene-Haldeman Co., Inc.	189
Griffin Wellpoint Corp.	130
Gulf Refining Co.	54
Gustin-Bacon Mfg. Co.	63
Haiss Mfg. Co., Inc., Geo.	188
Harnischfeger Corporation	18, 19
Haynes Products Co.	190
Heil Company, The	8
Heltzel Steel Form & Iron Co.	172
Hetherington & Berner, Inc.	167
Homelite Corp.	42
Hooper & Sons Co., Wm. E.	47
Huber Mfg. Co., The	33
Independent Pneumatic Tool Co.	16, 17
Ingersoll Steel Div., Borg-Warner Corp.	134
Inland Rubber Corp.	192
Inland Steel Co.	2nd Cover
International Harvester Co.	128, 129
Iowa Mfg. Co.	46
Irvington Form & Tank Corp.	24
Jackson Vibrators, Inc.	126
Jaeger Machine Co., The	57, 154
Jahn Company, C. R.	162
Jaques Power Saw Co.	66
Johns-Manville Corp.	155, 163
Johnson Company, C. S.	148
Joy Mfg. Co. (Sullivan Div.)	41

(Continued on page 192)

## Worthington-Ransome Blue Brute Distributors

See ad on 4th Cover for list of  
equipment in each line

### Worthington-Ransome Distributors

Ala., Birmingham, Construction Equip. Co.  
Ala., Montgomery, Burford-Toothaker Tractor Co.  
Alaska, Anchorage, Airport Machine & Storage Co.  
Ariz., Phoenix, Lee Redman Co.  
Cal., San Francisco, Coast Equip. Co.  
Los Angeles, Golden State Equip. Co.  
Colo., Denver, Power Equipment Company  
Connecticut, New Haven, Wilhelm-Davies Co., Inc.  
Fla., Miami, Allied Equip., Inc.  
Orlando, Highway Equip. & Supply Company;  
Tampa, Epperson & Company  
Ga., Atlanta, Tractor & Machinery Company  
Ida., Boise, Olson Manufacturing Company  
Iowa, Cedar Rapids, McNall Machy. & Supply Co.  
Ill., Chicago, Chicago Construction Equipment Co.  
Ky., Harlan, Croushorn Equip. & Supply Co.  
Maine, Portland, Maine Truck-Tractor Company  
Mass., Allston, Boston, Clark-Wilcox Co.  
Mich., Muskegon, Lakeshore Machy. & Supply Co.  
Minn., Minneapolis, Phillip-Murphy Equip. Co.  
Miss., Jackson, Jackson Road Equip. Co.  
Mo., Clayton, The Howard Corporation  
Montana, Billings, Interstate Truck & Equip. Co.  
Helena, Caird Eng. Works  
N. C., Raleigh, Smith Eqt. Co.  
N. J., No. Bergen, Amer-Air Comp. Corp.  
N. M., Albuquerque, Bud Fisher Co.  
Roswell, Smith Machy. Co.  
N. Y., Albany, Milton-Pale Machinery Company  
New York, Hodge & Hammond, Inc.  
Olean, Freedom Eqt. Co.  
Syracuse, Milton-Pale Mach. Co.  
N. D., Fargo, Smith Commercial Body Works, Inc.  
Ohio, Cincinnati, Carroll Edwards Co.  
Okla., Oklahoma City, Townsco Equip. Company  
Oregon, Portland, Andrews Equipment Service  
S. C., Columbia, Smith Equipment Company  
Tenn., Knoxville, Dempster Bros., Inc.  
Memphis, Independent Tractor Co.  
Nashville, Dempster Bros., Inc.  
Texas, Amarillo, T. W. Carpenter Equip. Co.  
Dallas, Shaw Equip. Co.  
Houston, Contractors Eqt. Sales & Service Corp.  
San Antonio, Patten Machy. Co.  
Tex., Tyler, D. M. McClure Eqt. Co.  
Vt., Barre, A. M. Flanders, Inc.  
Utah, Salt Lake City, J. K. Wheeler Mach. Co.  
Wash., Spokane, Andrews Equip. Service  
W. Va., E. Charleston, Allied Equip. Co.  
Wis., Milwaukee, Drott Tractor Co., Inc.

### Ransome Distributors

D. C., Washington, M. A. Doetsch Mach. Co.  
Ill., Chicago, Thomas Hoist Company  
Ind., Fort Wayne, American Steel Supply Co.  
Ky., Paducah, Henry A. Patten Supply Co.  
La., New Orleans, Ole K. Olson Company  
Md., Baltimore, Stuart M. Christhill & Company  
Mich., Detroit, T. G. Abrams  
Mo., Kansas City, Brown-Strauss Corp.  
Neb., Lincoln Highway Equip. & Supply Co.  
N. J., Newark, Johnson & Dealman  
N. Y., Buffalo, Murray Equip. Co.  
O., Cleveland, H. B. Fuller Equip. Company  
Pa., Philadelphia, Giles & Ransome  
Pittsburgh, Arrow Supply Company

### Worthington Distributors

Ark., Fort Smith, R. A. Young & Son  
Little Rock, R. A. Young & Son  
Ind., Indianapolis, Reid-Polcomb Company  
Ky., Louisville, Williams Tractor Company  
La., New Orleans, Wm. F. Surgi Equip. Co.  
Md., Baltimore, D. C. Elphinstone, Inc.  
Mass., Cambridge, Field Mach. Company  
Mich., Detroit, W. H. Anderson Co., Inc.  
Flint, Grandsen-Hall & Company  
Mo., Kansas City, Mach. & Supplies Co.  
N. Y., Buffalo, Dow & Co., Inc.  
New York, Air Compressor Rental & Sales  
O., Cleveland, Gibson-Stewart Company  
Toledo, The Kilcorse Mach. Co.  
Pa., Allentown, H. N. Crowder, Jr., Inc.  
Easton, Sears & Bowers  
Harrisburg, American Equip. Corp.  
Oil City, Freeborn Equipment Company  
Philadelphia, Metalweld, Inc.  
Pittsburgh, Atlas Equip. Corp.  
Wilkes-Barre, Ensminger & Company  
Texas, El Paso, Equip. Supply Company  
Va., Richmond, Highway Mach. & Supply Co.  
Wash., Seattle, Star Machinery Company  
Wyoming, Cheyenne, Wilson Equip. & Supply Co.

**BUY BLUE BRUTES**

Worthington Pump and Machinery Corp.

Worthington-Ransome Construction  
Equipment Division

Holyoke, Massachusetts

(Continued from page 188)

one way or another. Maybe you are that contractor. If so, maybe you figured that the increased volume of business which you were able to do more than covered your overhead. Maybe it did. But if you don't know, you are a speculator, not a business man. If you are still the small operator who has no overhead, you should still keep your records in a business-like way—it may be the means of your getting big sometime.

### What Kind of a Contractor Are You?

You may be one of those individuals who love to gamble, and take a chance once in a while, and prefer to do business that way, and you may be fortunate enough to get by with it for a while. Some men are lucky enough to operate on that basis, but even if you are that type of man, Uncle Sam says you must keep certain records for the well-known tax reasons, so why not keep proper records which mean something?

(5) Being a good manager and making the right decisions is not difficult if you have all the facts. Here's an example: We know a contractor who owned and operated a truck for delivering materials to jobs. A dependable trucker made him an offer to buy the truck and deliver his materials at so much for each delivery. This contractor referred to his records, saw he would save more than \$100 per month by the new arrangement. He knew the deal would be very satisfactory. Therefore, it was easy for him to make a decision.

If he had not had information which showed him the cost of operating his truck, he probably would have gone along as he had been doing, feeling that he was a very good manager, indeed.

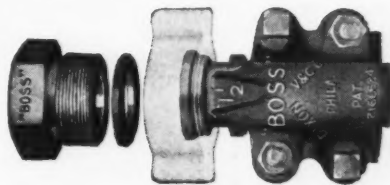
You are going to have a sharp upward curve in business. That you may also have a sharp upward curve in profits is one of the purposes of the new accounting system for contractors and builders designed by Tallman, Robbins & Co. It, or a similar system, can contribute much toward that end.

With full knowledge of your business you can have full control which means PROFITS, not headaches, black figures, not red.

\* \* \*

THE SECOND ARTICLE in this series will appear in the October Issue.

## There's Long, Low-Cost Service in Each of These DIXON PRODUCTS



### "BOSS" Washer Type Style W-16 FEMALE HOSE COUPLING

The most widely used of all washer type couplings for high or low pressure steam, water, hydraulic and air service. Furnished with patented "Boss" Offset and Interlocking Clamps, assuring a tight, full-circumference grip on the hose without pinching. Corrugated stem provides additional holding power. Large wing nut facilitates coupling and uncoupling. Sizes 1/4" to 4", inclusive.

NOTE: For washerless couplings of otherwise identical construction, specify "G J-Boss" Ground Joint Female Couplings, Style X-34; and for companion male couplings, "Boss" Style MX-16.

★ ★ ★

For connections requiring band type clamps . . . shank couplings, nipples, etc. . . the two "Kings" described below have features of utility and economy not available in any other kind.



### "KING" HOSE CLAMPS Single and Double Bolt

Made of malleable iron. Easy to attach, and can be used over and over again. Tightening provides evenly distributed pressure around entire hose circumference. Double bolt style has quadruple take-up. Full range of sizes.

Stocked by Manufacturers and Jobbers  
of Mechanical Rubber Goods.

IF IT'S A **DIXON** PRODUCT  
IT'S DEPENDABLE

**DIXON**  
VALVE & COUPLING CO.  
Main Office and Factory: PHILADELPHIA, PA.  
BRANCHES: CHICAGO BIRMINGHAM LOS ANGELES HOUSTON

# FREE! Tube Repair Wall Chart

**The INLAND Way to Make Vulcanized Repairs to Natural and Synthetic Rubber Tubes**

**Important: Proper Tool Equipment**—Proper tools, including the Inland Rubber Repairing Press, are essential for making proper repairs. The press is used to make repairs in the press at about 15 minutes before placing the repaired tube in the press.

**SMALL INJURIES**

**Passenger Tubes**—In making repairs to passenger tubes, the repairer should use the Inland Rubber Repairing Press. The press is used to make repairs in the press at about 15 minutes before placing the repaired tube in the press.

**Truck & Tractor Tubes**—In making repairs to truck and tractor tubes, the repairer should use the Inland Rubber Repairing Press. The press is used to make repairs in the press at about 15 minutes before placing the repaired tube in the press.

**LARGE INJURIES**

**Valve Stem Replacements**

**How to Identify Rubber in Inner Tubes**

**Recommended Curing Times**

**INLAND RUBBER CORPORATION — WORLD'S LARGEST MANUFACTURER OF VULCANIZING SECTIONS FOR TIRES**

—shows you how to make  
professional repairs to  
NATURAL or SYNTHETIC rubber tubes

This practical guide shows how to repair all sizes of injuries in all kinds of tubes, step-by-step. How to replace valve stems. How much curing time is required. How to identify various kinds of rubber. Helpful and handy for *everyone* who vulcanizes tubes. See your Inland salesman or automotive jobber for your Free Inland Wall Chart. Or mail the coupon.

**Clip this Coupon**

I want the Free New Inland Tube Repair Wall Chart.

Name.....

Address.....

Town.....

Inland Rubber Corporation, 33 So. Clark St.,  
Dept. C69,  
Chicago 3, Illinois.

**INLAND**

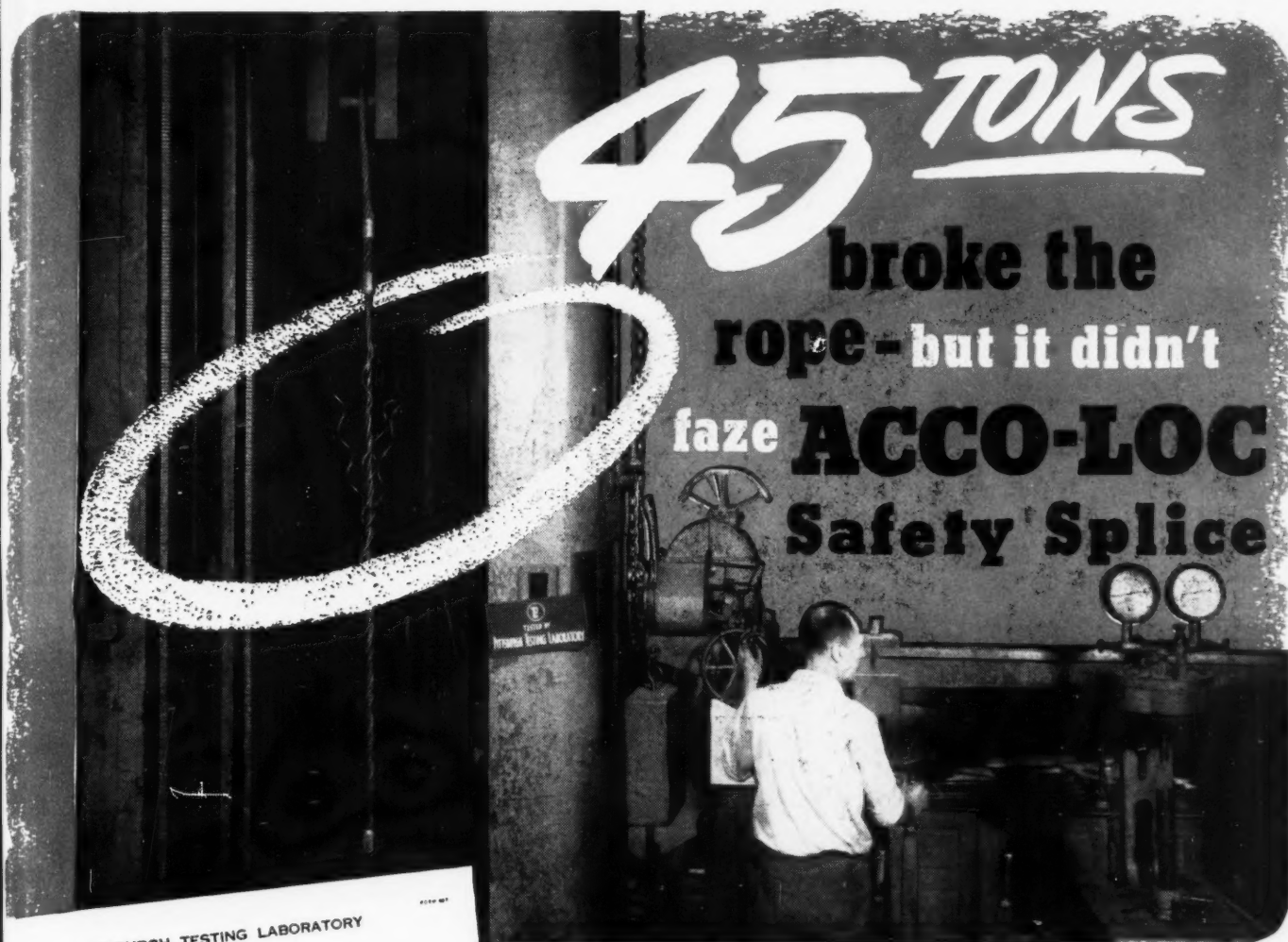
## Advertisers Index

(Continued from page 190)

Koehring Company.....	132, 133
Kotal Company, The.....	140
Laclede Steel Co.....	152
LaPlant-Choate Mfg. Co., The.....	169
Laughlin Co., The Thomas.....	160
Le Roi Company, Insert between pgs. 32 & 33	
Leschen & Sons Rope Co., A.....	25
LeTourneau, Inc., R. G.....	22, 23
Lidgerwood Mfg. Co.....	121
Lima Locomotive Works, Inc.....	67
Link-Belt Speeder Corp.....	82
Littleford Brothers Co.....	71
Lone Star Cement Corp.....	5
Louisville Cement Co., Inc.....	20
Lubriplate Div., Fiske Bros. Refg. Co.....	164
Lufkin Rule Co., The.....	170
Macwhyte Co.....	149
Mall Tool Co.....	146
Marlow Pumps.....	159
Master Vibrator Co.....	166
McGraw-Hill Book Co., Inc.....	160, 174, 188
McKiernan-Terry Corp.....	26
Mercer-Robinson Co., Inc.....	171
Michigan Power Shovel Co.....	58
Mine Safety Appliances Co.....	153
Moretrench Corp.....	55
Murphy Diesel Co.....	135
National Carbide Corp.....	138
National Lead Co.....	64
Nelson Corp., The Herman.....	39
Northwest Engineering Co.....	11
Nox-Rust Chemical Corp.....	150
Oakite Products, Inc.....	182
Osgood Co., The.....	147
Owen Bucket Co., The.....	156
Parkersburg Rig & Reel Co., The.....	68
Parsons Co., The.....	122
Perfection Steel Body Co., The.....	130
Pettibone Mulliken Corp.....	139
Preformed Wire Rope Information Bureau	143
Rapid Pavement Breaker Co.....	145
Republic Rubber Div., Lee Rubber & Tire Corp.....	158
Rodgers Hydraulic, Inc.....	28
Roebeling's Sons Co., John A.....	73
Rogers Brothers Corp.....	148
Schramm, Inc.....	173
Seaman Motors.....	10
Searchlight Section.....	189, 190
Seely, S. D.....	190
Service Equipment Co.....	190
Shell Oil Company.....	117
Shunk Mfg. Co.....	122
Sinclair Refining Co.....	79
Sisalkraft Co., The.....	186
Skillsaw, Inc.....	161
Smith Co., The T. L.....	83
Socony-Vacuum Oil Co., The.....	124, 125
Southwest Welding & Mfg. Co., (Construction Machy. Div.).....	56
Standard Oil Co. (Indiana).....	69
Standard Oil Co. (California).....	184
Steel Sash Sales & Service.....	190
Sterling Machinery Corp.....	190
Sterling Wheelbarrow Co.....	142
Sundfelt Equipment Co.....	190
Templeton, Kenly & Co.....	154
Texas Company, The.....	14, 15, 43
Thew Shovel Co., The.....	40
Timken-Detroit Axle Co., The.....	78
Timken Roller Bearing Co., The.....	113
Trackson Company.....	52
Union Fork & Hoe Co., The.....	170
Union Metal Mfg. Co., The.....	77
United States Steel Corp., Subsidiaries	44, 119
Universal Atlas Cement Co.....	119
Universal Road Machinery Co.....	162
Vacuum Concrete, Inc.....	65
Viber Company, The.....	158
Vulcan Iron Works.....	174
War Assets Administration.....	175, 178, 179, 183, 187
Warner Bros. Co. (Spiratube Div.).....	137
Wellman Engineering Co., The.....	171
Westinghouse Air Brake Co.....	32
White Mfg. Co.....	150
Whiteman Mfg. Co.....	142
Wickwire Spencer Steel Div., Colorado Fuel & Iron Corp., The.....	157
Williams & Co., J. H.....	185
Wisconsin Motor Corp.....	146
Woodridge Mfg. Co.....	61
Worthington Pump & Machinery Corp.....	191, 4th Cover

# 45 TONS

broke the  
rope - but it didn't  
faze **ACCO-LOC**  
Safety Splice



**PITTSBURGH TESTING LABORATORY**  
PITTSBURGH, PA.

LABORATORY NO. 363283  
FILE NO. 11209.19

REPORT  
July 18, 1945

Test of - Wire rope assemblies made of 6x19 PREFORMED Improved Flow  
Steel Wire Rope with Independent Wire Rope Center with  
ACCO-LOC SAFETY SPLICE Loop on each end.

Reported to - American Chain & Cable Co., Inc.  
Wilkes-Barre, Pa.

TEST NO.	ROPE DIAMETER	ACTUAL BREAKING STRENGTH	MINIMUM REQUIRED BREAKING STRENGTH	TYPE OF FRACTURE
1	3/8"	14,680#	12,800#	4 strands & center
2	3/8"	14,680#	12,800#	6 strands & center
3	3/8"	14,680#	12,800#	5 strands & center
4	1/2"	26,010#	22,400#	4 strands & center
5	1/2"	25,850#	22,400#	4 strands & center
6	1/2"	26,050#	22,400#	4 strands & center
7	3/4"	51,250#	49,900#	3 strands & center
8	3/4"	50,900#	49,900#	4 strands & center
9	3/4"	51,750#	49,900#	3 strands
10	1"	91,000#	87,600#	4 strands & center
11	1"	94,550#	87,600#	3 strands & center
12	1"	95,050#	87,600#	3 strands & center

RESULTS:  
1. All specimens exceeded the minimum required breaking strength.  
2. After testing, all ACCO-LOC SAFETY SPLICES were intact. None showed visible deformation.

NOTES:  
1. All minimum breaking strengths from Federal Specification WR-R-571a for Wire Rope, dated May 9, 1945. Reference Table XXVI for 3/8" dia. rope, plus 7-1/2% for IWRC. Reference Table XXVII for 1/2", 3/4" and 1" dia. wire ropes.  
2. For tests 1 to 9 and 12 inclusive speed of testing machine 1-1/16" per minute.  
3. For tests 10 and 11 speed of testing machine 7/16" per minute.

PITTSBURGH TESTING LABORATORY  
R. E. Lincoln  
Physical Test Section

3/8" to 1" TRU-LAY Preformed wire ropes, equipped with ACCO-LOC Safety Splices, pulled to destruction — without the slightest effect on the rope terminals. That test was made by the Pittsburgh Testing Laboratories. But it is in the thousands of plants where ACCO-LOC Safety Splices are daily proving their 100% efficiency that the test of true worth is appreciated. — Compact, neat, flexible, made without distortion of rope structure, the ACCO-LOC Safety Splice is a revolutionary advance for wire rope endings. Send today for fully detailed literature.



**ACCO**

Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Emienton, Pa., Houston, Los Angeles, New York, Philadelphia, Pittsburgh, Portland, San Francisco, Tacoma, Seattle, Bridgeport, Conn.



**AMERICAN CABLE DIVISION  
AMERICAN CHAIN & CABLE**

*In Business for Your Safety*

# IT'S A BEAUTY FOR LOOKS... A BRUTE FOR WORK



This Worthington 210' Blue Brute Compressor is a brute from the word "Go". It pushes out air to those WJ-45 Rock Drills with an ease that means everything from low fuel consumption to long years of the hardest kind of work.

Underneath that handsome exterior is a "heart of steel" — the Worthington Feather\* Valve that users recognize as the simplest, most efficient ever made. You'll also find such money-saving features as three-point suspension of engine and compressor as a single unit (that's for eliminating

vibration and shock)... force-feed lubrication... an exclusive idling control... and other Worthington features that help you turn the fewest dollars of power into the greatest amount of work, meanwhile keeping the machine fit in the face of the most rugged service.

Hook up the 210 with Blue Brute Rock Drills, Paving Breakers or other Air Tools and watch them tear into their work. You'll be getting a first-hand picture of why *there's more worth in Worthington!* See your nearby Worthington distributor.

\*Reg. U.S. Pat. Off.

H8-3

*Get more WORTH from air with WORTHINGTON*

## KNOW YOUR

## BLUE BRUTES

Your Blue Brute Distributor will gladly show you how Worthington-Ransome Blue Brute construction equipment will put your planning on a profitable basis. His name is listed on page 191' Blue Brutes include:

### RANSOME EQUIPMENT

Pavers, Concrete Spreaders\*\*, Concrete Mixers, Concrete Placing Equipment, Big Mixers, Finishing Machines\*\*, Pneumatic Placing & Grouting Equipment, Truck Mixers, Plaster & Bituminous Mixers, and related equipment.

### WORTHINGTON EQUIPMENT

Diesel and gasoline engine driven Portable Compressors from 60 to 500 cu. ft. capacity in mountings to suit all jobs; Rock Drills and Air Tools in a wide range of weights and sizes; Contractors' Pumps\*\*.

\*\*To be announced

# BUY BLUE BRUTES



Compressors from 60 to 500 cu. ft. capacity in mountings to suit all jobs. Rock Drills and Air Tools that have

always set the pace for easy operation — available in a wide range of weights and sizes.

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